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MANUAL

FOR

HOSPITAL NURSES IN INDIA

BY

M. A. NISBET,
Matron Superintendent, General Hospital.

WITH 29 WOOD-CUTS.

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PREFACE.

Mrs. Nisbet has asked me to write a preface for her book, and I do so with much pleasure. In glancing through its pages one finds no impracticable ideal, but a true picture of every-day nursing as practised in the General Hospital, Madras. She has had the greater part of this work in manuscript since 1893. As the old Nursing Manual was ong out of date, I urged her some months ago to publish new one, taking her manuscript as the basis, feeling re she would thereby supply a long felt want, not only in hospitals of this Presidency, but in those of Bengal and nbay. The result is the present book.

s to Mrs. Nisbet's claims to be an authority on nursing, work will bear sufficient witness. Some of her readers hink that she has gone into too much detail. To me, er, this seems one of the chief commendations of the Surgeons are sometimes in a difficulty as to whether should perform this or that office for her patients. n be no further doubt now on such matters: what hould do is here laid down by an authority no one se to dispute, nor will any nurse cavil to do it s sanctioned by such authority.

While instruction in practical nursing is, througl from her own pen, Mrs. Nisbet desires to acknowledge indebtedness, in the compilation of other portions, to work of Miss Florence Lees, and to the Manual of t Medical Staff Corps.

That the book will mark the beginning of a new era in nursing in India I have no doubt; and, if the lot of the sick and wounded in our hospitals is made happier through her efforts, the authoress, to whom nursing is a religion, will regard it as sufficient reward.

JOHN SMYTH, M.D., F.M.U.,
Surgeon-Major, I.M.S

I GRATEFULLY acknowledge the kind advice and help I h had from Surgeon-Major Smyth in publishing the Ma for Hospital Nurses in India, as I feel it would have an impossibility without his assistance. The not "The Management of Caste Patients" and also the C on "Diseases" which is most valuable for the inst of nurses have been written by Surgeon-Major Smy

M. A. NISBET,
Matron Superint
General

MADRAS, 1896.

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MANUAL FOR

HOSPITAL NURSES IN INDIA.

PART I.

CHAPTER I.

GENERAL NURSING.

NURSES AND NURSING—DAILY WARD ROUTINE—THE MANAGEMENT OF CASTE PATIENTS—VENTILATION OR PURIFICATION BY AIR—CLEANLINESS—DISINFECTANTS —BEDS, BEDDING AND CLOTHING—HOSPITAL UTENSILS —NURSING APPLIANCES—DIET AND ADMINISTRATION OF FOOD—OBSERVATION OF THE SICK AND NOTE TAKING.

NURSES AND NURSING.

The meaning of the word, "to nurse" is to attend and take care of in sickness. Nurses are attendants on sick people under the direction of learned men who practise the art of healing. Not alone are they to tend the sick and take care of them, but they must also be trained to do so according to directions given.

The qualifications set down as necessary for nurses by the Nightingale Training School are as

follows:—"cleanliness, sobriety, punctuality, neatness, truthfulness, honesty, obedience, quickness and orderliness; but the qualities nurses should specially display toward sick people, are kindliness without familiarity, and firmness with gentleness." Let nurses begin their training with these qualifications and they will gain by experience other valuable qualities, such as forethought, presence of mind, accuracy and the power of observation. Much practical common sense must be exercised in Hospital nursing. A nurse in charge of a ward or wards should always look alert and business-like, though she should never be noisy or rough in manner. The motto of the Nightingale School is a good one to bear in mind at all times: "Be not weary in well doing." Seeing a nurse sitting listlessly in her ward with her back towards the patients, forcibly reminds one of that sarcasm from the mouth of Betsy Prig: "Sick people don't want for much and if they did, they would not get it."

DAILY WARD ROUTINE.

The day nurse. Her dress.

A nurse in charge rises at 6 A.M., has her bath (for nurses should be scrupulously clean in their own persons) puts on her spotless white uniform with cap and apron, her scissors, forceps and pin-cushion at side and having had *chota hazri* goes to her wards looking bright and cheerful and bringing a breath of freshness to her patients and to the night nurse going off duty.

Routine duties.

She carefully goes from bed to bed listening to the night report, noting who has slept well, who has had a bad night, and all other essential parti-

culars. She takes over charge and apportions the day's duties for the junior nurses and ward attendants, such as taking temperatures, giving medicines, changing poultices, applying fomentations, renewing ice bags, preparing dressings, bed making, ward sweeping, dusting, washing of patients, all to be done quietly and quickly. She is to be prepared to give information to the Assistant Surgeon and students who come to the wards before the Medical officers.

Doctor's visit.

The nurse in charge then awaits the arrival of the Doctor with towel, pen and ink, tongue depressor, stethoscope, and all other necessaries. A basin of water with soap and some disinfectant should always be ready for use. Sputa and specimens of urine should be ready for inspection, motions which have been ordered to be kept at hand under cover, and everything that is likely to be needed should be got without fuss or running up and down. The nurse then follows the Doctor's visit keeping close behind him at his right hand side, and listening carefully to his directions; she checks loud talking or noise and answers quietly and respectfully when questioned, reminding Assistant Surgeons or students of anything in particular they may appear to have forgotten to bring to the notice of the Medical officer.

Duties after the Doctor's visit.

The morning 'visit' over, and dressings, &c., finished, all soiled dressings, used poultice, &c., should be put into receptacles and removed without delay. The nurse sets the ward attendants to prepare for patients' breakfasts and sits down to

write diet statements and requisitions which must be sent to the Steward's department as early as possible. When the patients have been served with their breakfasts, the nurse, leaving another in charge, takes three quarters of an hour for her own breakfast, and, on her return to the ward, should see if any patients have not eaten their food, and if so, why? She should pay particular attention to all serious cases and keep special written reports when ordered. Then the linen should be examined, all soiled clothing returned to the linen clerk, and, if needed, clean clothing obtained instead; but, if the nurse is a good manager, this will only be required on the regular days for issue of clean clothing as laid down in the Hospital rules; and, by keeping the ward attendants attentive to the requirements of the patients, she will prevent clothing being unnecessarily soiled. Patients must be admonished about any dirty habits they may have such as spitting on the floor, throwing their cigar ashes about, shaking snuff over their sheets, leaving their lockers untidy, spilling milk, &c.

Inspection and care of linen.

Patients who are bed-ridden and helpless, must be attended without delay, and all clothing soiled by evacuations or discharges, or clothing removed from contagious cases, must at once be immersed in a disinfecting solution in buckets supplied for the purpose in the verandah of each ward, and then rinsed by toties before being handed over to the Laundry.

Serving

The nurse should now serve out medicines and

stimulants. The medicine bottles should be kept quite separate from any poisons, as otherwise mistakes are liable to happen. *and custody of medicines.*

Poisons and stimulants should be kept locked up carefully.

The "chicks" at the sunny side of wards should be drawn down and the nurse should encourage her patients to try to sleep for a couple of hours from noon till 2 P.M.

Patients' dinners.

When dinner is served in European wards, she should receive the diets, see them distributed, direct her junior nurses to attend blind and helpless patients, going round herself to each one.

Bed making, &c., by patients.

Convalescent patients should not be permitted to walk about the wards at all times, nor to smoke, or talk loudly, or otherwise disturb the quiet and orderliness which should prevail. They should be encouraged to make their own beds, clean their lockers and help other weaker patients in little things. Work such as this could do convalescents no harm, and would keep them from being mischievous.

Duties to the dying.

Nurses have the solemn duty of watching those who die. Attendance on the dead or dying should be done with all reverence. When the patient appears to be in a hopeless state, the Apothecary or Assistant Surgeon on duty should be reminded to acquaint the nearest relatives, and if the patient expresses any desire to have religious rites of any form or kind, his priest should be apprised. No morbid or idle curiosity of other patients to see a

dying or dead man should be encouraged. Screens should be placed round the bed and no one allowed near but the attendants. The body should be laid out decently and taken out of the ward as quickly and as quietly as possible.

Arrangements for nurses' tea and rest hour.

Nurses have each one hour off duty between 2 and 4 P.M. for tea and rest, but one nurse must always be in charge of each set of wards.

Visitors.

At 3 P.M. the wards should be swept and dusted, beds remade, lockers tidied, and patients who are able to be out of bed, made to sit in the verandahs with their visitors. No crowding on beds should be allowed, nor more than two visitors with each patient. Patients who are very ill, ought not to be allowed to talk or be excited in any way. The nurse is to be very careful in any conversation she may have with patients or their friends that there is no gossip. She is to be reticent, and while treating every one with courtesy, allow no approach to familiarity; she is on no account to discuss the ailments or medical treatment of patients, but, when a new patient is admitted, it is her business to find out from himself or from his friends as much as possible as to his habits, temperament and the history of his ailment. The nurse must see that visitors all leave at the hour specified in Hospital rules.

No gossiping.

Nurse's examination of new patients.

Preparation for next day's work.

Spare time in the afternoon is to be employed in preparing for the work of the next day, a proper stock supply of every thing obtained, almirahs and cupboards arranged and put in order; the ward attendants made to clean knives, forks, crockery,

&c., and to leave the wards and ward kitchens clean and tidy for the night-duty men.

Studies of nurse pupils.

Nurse pupils should study Hospital rules, Diet scales and Manuals, roll bandages, prepare dressings, pad splints and many other things which may be specially ordered or considered necessary. The nurse in charge must never allow her junior nurses or ward attendants to leave the wards without her knowledge, and must see that the latter adhere to hours laid down in Hospital rules for ward attendants to be absent for their food.

Discipline.

Toties' duties.

Toties should never be allowed to enter any ward, as, owing to the nature of their duties in the latrines, and their habits, their persons or clothing cannot be as clean as is necessary for attendants on the sick. They can remove articles from the verandahs and clean them in the latrines, the ward attendants or nurses giving them the used bed-pans, mullays, dressing dishes, &c.

Medicines must be given and temperatures registered at the specified hours.

Night duty nurses take charge—their duties.

At 6 P.M., the night duty nurses take over charge. The night nurses see that the evening meal is served and eaten and the patients prepared for their night's rest. All lights must be lowered at 9 P.M. and perfect quiet maintained. Night nurses are allowed one hour for their own supper before 9 P.M.

Night attendants to

Patients must be particularly guarded against getting chills at night and should never be obliged to call several times for what they may require.

be wakeful. Ward attendants must be reported if not wakeful and attentive. The necessary work at night must be done silently. Changing of poultices, giving medicines, renewing ice bags, &c., must all be done according to orders given.

Beginning day work. At 5-30 A.M. the work of the day begins. Each nurse in turn can go to her quarters for fifteen minutes to change her dress, tidy herself and have a cup of coffee. She then returns to her ward, serves medicines, records temperatures and other necessary particulars on the charts, copies neatly in her case-book notes of special cases which she may have orders to keep, and gets as much bed making and general ward work done as possible. She must, after having given over charge to the day nurse, report herself to the Matron.

Night nurses' hours for sleep. It is absolutely essential that night nurses should sleep several hours during the day and arrangements should be made that they can have seven hours uninterrupted sleep at least, but it would be better that they should have eight hours.

THE MANAGEMENT OF CASTE PATIENTS.

The great bulk of native patients is made up of Sudras or of persons of no caste at all. But the poor and needy are by no means confined to these classes. The poor amongst the higher castes are deterred from coming to our hospitals chiefly because of their associations in the hospital, but also by the notion that their caste customs will be ignored or treated with contempt in the hospitals. It is, however, the duty of all hospital officials to try all they can to make residence in the hospitals

as little irksome to the sick poor of high caste as possible. In the first place all native ward servants who have immediate dealings with the patients should be caste-men. The difficulty of obtaining such is really not great, and, provided they are carefully and tactfully trained, not only by precept but by example, they are seldom found unwilling to perform any duty necessary for the comfort of the sick, whether the patient be caste or non-caste. It only requires that the necessity for such duties be carefully explained to them by a medical official of good caste, to remove all objections. As a rule they cannot readily be *compelled* to perform such work. The nurse should always be careful not to appear to despise the caste-notions of the sick poor. A little sympathy with them instead will often go a long way to allay alarm on their part that their caste is being tampered with. Where accommodation is available, it is always well to keep patients of the higher castes in a separate ward.

VENTILATION OR PURIFICATION BY AIR.

General remarks.

The air we breathe enters our lungs and conveys to the blood whatever pure or impure gases it may contain. Thus, if we live in the country, on hills or on the ocean, where there is free access of pure air containing plenty of oxygen, (a gas generated by sunlight), we feel exhilarated, our appetites are good, our flesh becomes firm and plump, wounds heal quickly: in one word, we are healthy. Dwellers in cities do not breathe such pure air as there is so much impurity around them from the waste products

of animal life. The breath exhaled, the emanations from the skin and evacuations of others, all help to defile the air, so that city people often feel languid, look pale, are more subject to disease, require dainty food to excite their appetites and stimulants to exhilarate them. If this is so amongst the general community, how much greater must be the need for securing a continual supply of fresh clean air in Hospital wards or in rooms where there are diseased people, for, if the air of the ward or room be not constantly replaced by the pure air outside, it becomes loaded with impurities given off from the lungs, skin, excreta, &c., of the occupants.

Methods of ventilation in cold climates.

In hospitals or houses in colder climates, there are many plans for artificial ventilation to obtain fresh air from outside without lowering the proper temperature. This is effected by having inlets for pure air, and outlets for impure air, which can be opened or closed as required. Windows and fire places act as ventilating apparatus. A window can be left open at the top to admit fresh air which gradually diffuses through the ward without causing a draught directly on the beds; while a fire kept burning with an open chimney, carries away the impure air, or even a lamp burning in an empty fire place gives the needful impetus to the current of air up the chimney. There are also Tobins, Moores, and Sheringham's ventilators (or systems of ventilating). Tobin's ventilators are excellent, the inlet for the air being near the floor, the air immediately enters a wooden shaft about six or seven feet high which can be opened or closed at

the top as needed. Heated air, owing to expansion is lighter than cold air and so ascends. Damp, impure air is the most fatal in a Hospital ward as it tends to lie in corners and under beds, becoming stagnant and more and more impure; it is the fruitful cause of unhealthy wounds and lowered vitality. In tropical hospitals, ventilation is a simple matter compared to what it is in a colder climate as the wards are open on all sides; there is thus natural, not artificial, ventilation.

Ventilation in the tropics.

But the purity of the air coming from outside must be considered. To secure this, no foul matter should be allowed to collect in drains, latrines or verandahs; no damp articles hung to dry in wards, and everything in and around the wards should be kept scrupulously clean. The patients also must not be permitted to cover their faces while sleeping as they thus inhale emanations from their own bodies and also exclude the fresh air.

The source of air supply to be kept pure.

In connection with having free ventilation, there are three difficulties which present themselves to a Madras nurse: (i) keeping the wards cool by day; (ii) guarding against chilly air at night, and (iii) being prepared for sudden storms of wind and rain. The wards can only be kept cool by shutting out the sun's rays, the shutters being closed and the venetians kept open, tatties drawn down and cold water sprinkled on the floor of verandahs. Patients must not be allowed to lie exposed to chilly draughts at night; suitable clothing should be provided and the beds must always be placed *between* not *opposite* the windows. The third difficulty can

Difficulties of ventilation in the tropics.

only be overcome by hastily closing doors and windows, as the rain and wind drive in with desperate quickness and force drenching everything.

CLEANLINESS.

In regard to the cleanliness of a hospital, one has to think of it as applying to the walls, ceiling, floor, furniture, utensils, beds and bedding and last and most important, patients.

Cleanliness of wards.

Once fortnightly a general cleaning of the ward should take place, walls and punkahs carefully dusted, pictures taken down and cleaned at back, all ledges of the ventilators dusted, cots and furniture washed with weak carbolic solution, shutters and venetians cleaned thoroughly and floor washed, care being taken in monsoon weather that the place is thoroughly dried after washing. Old pieces of condemned blankets, mattress and palliasse covers can be used to clean and dry furniture, fixtures and floors.

Nurses should take a pride in having their wards shining with cleanliness.

Sweeping.

The wards should be swept thrice daily being first sprinkled with water or a weak solution of carbolic acid, the dust being gathered in baskets supplied for the purpose and the floors lightly swabbed with a damp swab after each sweeping. Any spot or stain on the floor must be cleaned without delay and liquids not left to dry up. The furniture should be rubbed over with a damp cloth twice daily and re-varnished or painted when necessary. No commodes should be kept

in wards. The mullay beside each bedside should be re-tarred weekly and changed monthly. It is also necessary that bed-pans, spitting cups, urine glasses and such like be kept as scrupulously clean as feeding cups, crockery and cutlery. Any vessel which is used for milk must be not only washed clean but scalded with boiling water; there should also be great attention paid to jars for broth, as the slightest taint spoils the whole. Cleanliness of utensils.

The beds should be turned and re-made twice daily, the mattresses being returned to the linen department if soiled or torn. *Cots* and palliasses should be changed every other month, linen changed twice weekly in European wards and once weekly in Native wards, no article requiring mending to be used till it has been repaired.

Every patient who comes in, if too ill to have a bath, must be washed in bed, his own clothing, if dirty, is to be sent home with his friends, otherwise made into a bundle and sent to store with a list of articles. Valuables or money should be handed over to the Steward from whom a receipt should be obtained. Patients must either bathe themselves daily, or, if unable to do so, they should be washed by nurses or ward attendants, or be carefully sponged under blankets according to directions. The cleanliness of patients' hair should be particularly attended to. If vermin are discovered, the hair should be shaved or cropped closely. (This however should never be done without the permission of the patient or the orders of the Medical officer). A little spirit of turpentine mixed with Cleanliness of patients.

carbolic lotion may be rubbed into the scalp which should then be washed with warm soap and water. The nails and teeth of a patient should also be attended to by the nurse.

Free passage of air under beds.

No soiled articles should ever be put in or under a bed: in fact nothing should be under a bed that could impede the free passage of air.

All losses or breakages in a ward must be entered in a book and reported at once through the Matron to the Assistant Surgeon or Steward by whom they are replaced.

Duties of toties and laches.

Toties or laches should be made to keep the verandahs, bath rooms and latrines clean, and also all utensils such as mullays, bed-pans, urine bottles, spitting cups, commodes, chambers, &c., the nurses teaching them, when necessary, the correct way of doing their work and seeing that dry earth is used as directed; also soiled dressings, &c., removed at stated intervals. The clothing soiled by discharges or evacuations is to be kept in tubs of disinfecting solution and rinsed out before being sent to the laundry.

DISINFECTANTS.

One can easily understand that where so many sick people are gathered together, more is required than ordinary cleanliness. Think of the foul emanations from the skin of a patient suffering from pyæmia, from the breath or sputa of the patient who has gangrene of lung, from the evacuations, sometimes passed involuntarily, of the paralysed or typhoid patient, to say nothing about

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wounds or sores which cannot be kept "sweet" by the use of antiseptics; also from special contagious diseases (which require isolated wards for their separate treatment).

Deodorants and disinfectants.

Now this aggregation of foulness can be rendered innocuous by the use of *disinfectants*. Disinfectants must not be confused with deodorants which only disguise bad smells, for true disinfectants exert a destructive action upon organic matter. There is a common practice in this country of burning what is called incense where there is a bad smell. This is about as useful as sprinkling scent to disguise a bad smell, and can only be compared to giving a hypodermic injection of morphine to a patient to relieve him of a pain caused by undigested food. Both the bad pain and the foul smell are a warning that there is something that ought to be got rid of. The nurse's first duty, then, is to get rid of the *cause* of the smell if possible, and then, if necessary, complete the cleansing process with a disinfectant.

Cleanliness the best disinfectant.

The very best disinfectant is *pure fresh air* as it not only contains the necessary oxygen, but by its unlimited supply, all poisonous or noxious gases are attenuated, thus being weakened and rendered inert. To quote a great authority: "perfect cleanliness in the sick chamber and good ventilation are of vastly greater importance than the use of any known disinfectant that could be safely employed."

Heat.

Heat is a powerful disinfectant, but one cannot burn, bake or boil everything. A temperature of 230° F. is supposed to destroy all living organisms.

Carbolic acid.

Carbolic acid is a well known disinfectant and may be used freely either in solution or as MacDougall's powder. The powder may be sprinkled over stools and vomited matter, and a little solution kept in spitting-cups, and also sprinkled occasionally over the ward floors. *Benzoic acid, chloride of lime* and *permanganate of potassium* are also disinfectants which may be used in the wards. *Charcoal* and *dry earth,* as well as some other disinfectants possess the property of absorbing offensive gases.

Benzoic acid chloride of lime & permanganate of potassium, etc.

Disinfection of empty wards.

An unoccupied ward and its furniture can be most easily disinfected by producing *sulphurous acid gas* by the burning of sulphur within it, closing up all apertures. The ward may be left closed from 12 to 24 hours and then thoroughly cleansed and whitewashed. Clothing should be steeped in water containing benzoic acid in the proportion of a large tea-spoonful of the common acid for every five gallons of water and should then be boiled, fumigated and dried, when they can be washed in the usual way without infecting other things.

Disinfection of clothing.

BEDS, BEDDING AND CLOTHING.

Cots.

Hospital cots are best made of iron and should be changed every other month. For this purpose there should be two sets. They should, each time, be freshly tarred, which renders them clean and wholesome, as tar is a disinfectant. To each leg of the beds, there should be a saucer-shaped foot which should always be kept full of carbolic or other disinfecting solution, as this prevents ants and other insects getting into the bed from the floor.

Beds should stand about a foot from the wall at the top and should not be placed either in a corner, or in front of a window where there would be a draught of air. The nurse should be careful to protect the mattress or palliasse and pillows from being soiled, by covering them with waterproof sheeting when necessary, as, when once soiled, they cannot be kept in use, the discharge, of whatever kind, soaking in, and making the air of the whole ward foul after a short time. The cots should be dusted daily, the mattress or palliasse turned and dusted at least once daily or, better still, twice. *Bed* and *body linen* must be changed twice weekly in European wards. The regulation allowance of linen must permit this, and a nurse will show her good management in arranging it; for, as every new patient, on admission, is to have clean clothing given him and will thus get a change again on the third day, it is only necessary to get linen from the Linen clerk weekly and to keep a proper stock-supply for patients in the linen presses in her wards.

Protection of mattresses.

Changing of bed and body linen.

Soiled clothing must be returned to the linen department daily; blankets should be changed once in two months, oftener of course, in dirty cases.

In bed making, the sheet should be put on very smoothly, the pillow cases kept neatly buttoned, the counterpane tucked in neatly round foot of mattress, and the blanket folded if not in use, so that the cots may present a uniform appearance. Such is the procedure in the European wards, but in the Native wards the palliasses should be covered

Bed making.

with a plain blue quilt and then the pillows placed at the top of the bed, the blanket folded if not in use at the bottom, each patient covering himself with his red cloth.

Patients' clothing

The patients' clothing should be given to them in good condition with a reminder that they are expected to take care of it, not to carelessly or wilfully destroy or damage any article. Bad cases should have the use of two cots when possible, for, in this hot climate it is not only extremely refreshing, but almost absolutely necessary, where a patient is confined to bed that there should be a thorough change morning and evening, as perspiration makes a patient feel so uncomfortable, and gives rise to a disagreeable smell.

Use of two cots for bad cases.

HOSPITAL UTENSILS.

Feeding cups, their use and cleanliness.

There are numbers of utensils, appliances and instruments with which a nurse must become familiarized. A *feeding cup* is an important utensil and should be either of porcelain or glass, and never used once the spout has been cracked or broken, as it is likely to cut the patients' lips; great care is necessary in cleaning it; the spout should be cleaned with a fine rag on a stick and the cup washed carefully *every* time it is used.

Bed-pans.

Bed-pans are of porcelain, earthenware or metal, mostly pewter. The porcelain ones are the best; they are made in two different shapes, round and slipper-shaped; the round shaped is most convenient and the easiest cleaned. The nurse should specially inspect the inside of upper ledge and also

the hollow handle of bed-pans; small mops are necessary for cleaning them and they should always be rinsed with carbolic lotion or some other disinfectant. The slipper bed-pan is useful in heavy dropsical cases, especially for patients who are unable to lie down and have to remain in the sitting posture propped up with bed-rests and pillows; the inside of the flattened portion of the slipper bed-pan should never be allowed to get encrusted with dirt, though it takes some additional trouble to keep clean, and requires many rinsings. *Chambers* may be of earthenware or porcelain. The outsides of these articles are often neglected, more often, in fact, than the insides. Nurses must keep in mind that both inside and outside must be scrupulously clean. Chambers.

Glass, porcelain and pewter *urinal bottles* are used of various shapes. Glass ones are the best as such articles are even more difficult than the other utensils to keep in a proper condition and are liable to incrustations of various deposits. They require frequent washings with water and soap or soda, and a few drops of nitric acid carefully used removes the deposit. Urinals.

Porringers of pewter or porcelain are required in every Hospital in large numbers and of various shapes. They are used to catch discharges from wounds when being dressed or irrigated, and are often graduated so that blood during an operation, pus on the opening of an abscess, or fluid after tapping can be measured in them. Porringers may be kidney-shaped, round, square, triangular, oblong, shallow or deep according to the purposes for which Porringers.

Expectoration cups.

they are required. *Expectoration cups* are made of porcelain or glass, of the shape of a mug with funnel-shaped perforation in the centre. They should have a little disinfecting solution always in them when in use, as, if quite dry, the phlegm hardens and sticks to the sides. *Basins for holding lotions* are best of enamelled ware as they do not break easily.

Basins for lotions.

Dressing trays or dishes, and how their tubes are to be cleansed.

Dressing trays or dishes are shallow metal dishes with tubes attached used in conjunction with irrigators. They are placed under the part during irrigation, and empty by drainage through the tube into a vessel such as a mullay, placed on the ground. Need attention be directed to the danger attending the neglect of cleanliness in the case of this tube attached to the dressing dish when it is known what foul and fetid discharges pass through it? After being used, it must be held under a tap and a strong current of water passed through; then it should be left for a considerable time soaking in a disinfecting solution. An *irrigator* for the purpose of washing wounds is a metal vessel with wire handle capable of containing about a quart of fluid, and having a short pipe with tap placed near the bottom fitted with a long tube having a nozzle at the free end. The irrigating stream can be regulated by raising or lowering the vessel.

Irrigators.

NURSING APPLIANCES.

Pads and pillows.

Articles which can be classed under the head of nursing appliances are many in number: *pads* and *pillows* of various shapes and sizes according to the purpose for which they are required should be kept in stock, they may be filled with tow, cotton-

wool, sawdust or horse-hair. A *fomentation appliance* consists of a wringer made of ticking with a strong roller at each end, squares of flannel, or old blanketing, a metal pot for boiling water, with earthenware dish to place it on by the bedside, also a vessel to wring the cloth into. These should be kept in the ward kitchen.

Fomentation appliances.

Also for poultices are required a board, a poultice basin and a knife or large spatula for spreading the poultice; these should be cleaned thoroughly after each time of using.

Poultice boards, basins and spatula.

Vessels for the application of heat are made of tin, stoneware or strong glass and must be of convenient size and shape with good cork or stopper, and they should have flannel covers made to fit them. *Bed-rests* of wood should be light and strong and easily adjustable to any angle.

Vessels for the application of heat.

Bed-rests.

Waterproof sheeting or mackintosh can be got by the yard and should be as wide as the bed, and, if intended to cover the whole bed not less than two yards long; the smaller lengths for placing under drawsheets may be from a yard to a yard and a half long. There is also a thin waterproof material of a bright pink color ordinarily used for hat linings but most useful as a covering for splint pads and for other nursing purposes. It is a good plan to buy mackintosh sheets with eyelet holes so that they can be smoothly stretched and fastened to the sides or corners of the bed. They should be waterproof on both sides as the cloth back is apt to get stained and cannot be cleaned satisfactorily. To clean mackintoshes, they should be spread on a

Waterproof sheeting.

Cleansing of mackintoshes.

bench or table and washed with soap and water and a lump of tow; a little chlorinated soda put in the water keeps them a good color, but this should be seldom used. Mackintosh ought never to be placed in hot water, and should on no account be squeezed or wrung between the hands, but should be dried with a cloth.

Cradles. *Cradles* are iron, wood or bamboo frames and are particularly useful in supporting the bed clothes over any wounded or tender part, also for suspending ice-bags. Ice-bags. *Ice-bags* sold in chemists' shops are made of guttapercha with metal mouths and screw stoppers, but the kind most commonly used in this country are dried bladders. These must be changed frequently as they get spoiled and smell nastily after a few hours' use.

Stretchers and screens. The best kind of *stretchers* and *screens* are those having a wooden frame work with strong canvas attached. The canvas can be changed as often as necessary and should always be kept scrupulously clean.

Ward tables and stands. In each ward there should be a table set apart for the microscope and testing apparatus, a neat stand for small bottles containing chemicals, a stand for test tubes, a box of matches, spirit lamp, Urinometer stands. urinometer, specimen glasses numbered to correspond with number of beds and a box of test papers. Test tubes and specimen glasses. Infinite care should be taken as to cleanliness of test tubes and specimen glasses so that correct results may be obtained.

Ointment There should be a small basin and jug for water, a

glazed vessel for slops and a napkin or towel. An ointment slab, of porcelain, glass or marble with a small spatula should be kept for spreading greasy dressings. slab and flatula.

Air and *water-beds* or pillows require great care and should always have covers on when in use. Nurses should also be careful in screwing or unscrewing the openings, as it is generally there they get broken and leaky first. Care should also be taken that no pins are run into them as they are very expensive and it is almost impossible to mend them effectually. Air and water-beds and their care.

There are several other articles which all nurses should have at hand, such as *crutches, slings, measuring-tape, spring balance, ounce and minim glasses, needles, pins, sewing cotton, quills, feathers, camel's hair pencils, lime squeezer, sieve, funnel and corkscrew.* There are besides all these things already mentioned other appliances and instruments. A nurse has to know something about *syringes, thermometers, catheters, trusses, forceps, scissors, aspirators, bougies, lactometers, laryngoscopes, microscopes, probes, directors, retractors, speculums, stethoscopes, sphygmographs, stomach pumps, trocars, canulas, tongue depressor, sutures, tracheotomy tubes, drainage tubes, caustic holders, gags, tourniquet, Leiter's coils, cupping and inhalation apparatus, pleximeter and hammer, galvanic and electric batteries.* Small ward necessaries. Appliances and instruments.

Syringes are used for giving injections or enemata. There are glass or pewter syringes, principally for injections and nutritive enemata; Higginson's syringe for irrigating, cleansing wounds Syringes.

or washing out cavities; hypodermic syringes for injecting drugs under the skin; brass syringes used sometimes for giving purgative enemata or washing out the lower bowel. A *thermometer* is an instrument for measuring heat by the expansion of a column of mercury according to a graduated scale. A nurse has to understand what is called the *ward thermometer*, which shows what the degree of heat or cold in the atmosphere is; also that for ascertaining the elevation or depression of temperature in the human body consequent on disease. Thermometers have a bulb and hollow stem, containing mercury and are marked with graduated scale. Fahrenheit's scale is that used in English hospitals and the *ward thermometer* is divided into 180 parts or degrees. The *clinical thermometer* usually registers from 95° to 110° (water freezes at 32° and is at boiling point at a temperature of 212°). Thermometers should be taken special care of as they are both fragile and expensive.

Thermometers.

Clinical thermometers require "setting" and cleansing after use.

Catheters are made of gum-elastic or silver, and their principal use is to draw off urine from the bladder, but they are also used for other purposes such as feeding of patients in stricture of the œsophagus. A *truss* is a steel apparatus covered with leather, used for hernia, to keep it reduced. *Forceps or pincers* are of many kinds such as dressing or artery forceps. *Surgical scissors* may be straight or curved, blunt or sharp pointed.

Catheters.

Trusses.

Forceps.

Surgical scissors.

Aspirators are instruments for drawing off gas, or liquid, by exhausting the air in a receiver and so causing a vacuum into which the fluid from an

Aspirators.

abscess or tumour flows through a hollow needle which has been introduced into the part to be emptied. If a nurse should have charge of an aspirator, she must thoroughly master the mechanism, otherwise it will be quite impossible for her to clean it or keep it in working order. *Bougies* are instruments for dilating passages such as the œsophagus, rectum, urethra. A *lactometer* is a graduated glass instrument for indicating the specific gravity of milk. A *urinometer* is for obtaining the specific gravity of urine. *Speculums* are hollow or concave instruments lined with silver or other bright substance for throwing light into certain internal passages such as the ear, rectum, &c. A *stomach pump* is used in cases of poisoning, &c., for washing out the stomach or for pumping out its contents. *Sutures* and *drainage tubes* are needed for surgical cases and should always be kept in a disinfecting solution ready for use. *Tracheotomy* tubes, *cupping* and *inhalation apparatus* all require care and great cleanliness. *In fact all instruments should be kept so that they are ready for immediate use and should never be put by unless thoroughly cleaned immediately after use.*

Bougies. Lactometers. Urinometers. Speculums. Stomach pumps. Sutures and drainage tubes. Cupping and inhalation apparatus.

A *tourniquet* is a kind of bandage used for arresting the current of blood in a limb. The kind most generally used now is of guttapercha tubing with a ring and short chain at one end and a strong hook at the other.

Tourniquets.

Leiter's coils are of zinc tubing and are used for the application of cold to any special or inflamed part, ice cold water being conveyed through the

Leiter's coils.

coils from a vessel placed above the patient and allowed to run into a bucket or other receptacle placed on the ground.

DIET AND ADMINISTRATION OF FOOD.

Food in health.

To the healthy and strong, diet is an important matter; but how much more so must it be considered for those, who, by disease or accident have their appetites and powers of digestion impaired and deranged? In a healthy man taking much active exercise all the digestive functions are in good order and a considerable amount of solid food is required and made good use of in building up and repairing waste in the various tissues of which the human body is composed; but let a man fall ill, or be confined to his bed, or even to one room, and what is most likely to happen? He either loses his appetite for food, or the food he has been accustomed to take and enjoy, begins to disagree with him; he suffers from indigestion, headache, constipation and various other symptoms. These may all be caused merely by the want of exercise; but added to this, the greater number of Hospital patients are suffering from disease; it may be only simple fever causing exhaustion and weakness. What is a nurse to do? She cannot or rather ought not to lessen the supply of nourishment. The indication is to find out what is most nourishing, and at the same time most easily digested. Now in Hospital nursing any difficulty in this direction is spared the nurse, for she must adhere closely to the diet scale which she has to commit to memory, and, as regularly as the medicines are prescribed,

Hospital diet scales to be committed to memory.

thus daily is the diet written on each patient's diet sheet by the Medical officer in charge, and it is one of a nurse's most important duties to adhere faithfully both in the spirit and letter to the Doctor's orders on this subject, for a patient's life or death may depend much more on his diet than on any thing else. It is not alone necessary that the patient should get the exact quality and that it should be well cooked but a nurse must know whether the patient eats it or not, and must also prevent the surreptitious introduction of food (either solids or liquids) from outside the Hospital by the patient's friends; for nurses frequently hear the complaint both from the patient and his friends that "he has not had a morsel to eat for days," it may be even "for weeks," and that "he is dying simply of starvation," and this at a time when he consumes daily several pints of broth and milk.

Nurses' duties with regard to the patients' diets.

Surreptitious introduction of food from outside the Hospital.

Nurses must also prevent patients giving or receiving diets from other patients and if it is found that a patient does not eat the diet ordered, the fact and his reason for not doing so must be brought to the notice of the Doctor. Any partiality or dislike for particular foods might also be noted at the same time. The nurse must keep in mind that sick people often have vitiated tastes, and crave for food that would be very injurious. For instance, typhoid patients beg for solid food, those suffering from diabetes long for sweet things, and there are few people but know the intense and morbid craving which those suffering from alcoholism have for stimulants; therefore wines and spirits

Partiality or distaste for different kinds of food.

Administrations

of stimulants. ordered for patients should be carefully measured and administered only by the nurse, who should keep her store of such things locked up.

Milk and broth. Milk, beef tea and chicken or mutton broth are the most suitable articles of diet for the very sick, and comprise all that is necessary for the nourishment of the human body, and the nutriment being so largely diluted it can be most easily assimilated and absorbed. Boiled white meats come next in value: fowl, fish and mutton; then custards, eggs, light farinaceous puddings, jelly, rice biscuits, bread, or toast, and vegetables will probably be given with these; and so, gradually, as the patient gets back to his normal health, will his diet be changed until, when fit to leave the Hospital, he is able to enjoy and digest full diet.

Gradual return to ordinary diet.

Peptonizing of food. But there are frequently cases where, owing to the organs of digestion being so out of order that even milk or broth cannot be digested, and may be rejected almost as soon as swallowed, or may pass unchanged through the stomach and bowels, or may set up irritation or cause diarrhœa, the nurse is ordered to peptonize the food; this is done according to given formulæ with pepsin which is an artificial gastric juice prepared from the stomachs of animals, such as the calf or pig, by which food can be digested and made ready for assimilation before it is taken into the body. There are many extras which the Doctor may order: Leibeg's Extracts, Brand's Essences, Mellin's Food, etc., but what the nurse has to bear particularly in mind is that she is neither to add to nor take from whatever

Extra diets.

Diets to be strictly adhered

is ordered, her duty is to intelligently administer the prescribed diet. to by nurse.

Serving of diets.

But much more than may be imagined lies in the administration of the diet; it must be placed before the patient in as appetising a form as possible; though the nurse in Hospital has no pretty china, delicate glass, or snowy damask to serve the food on, still, there are many little things which might be attended to more than they usually are. The top shelf of the locker by each bed-side must be reserved solely for food; for what can be more disgusting than to see a not over-clean hair-brush and comb, or a spitting cup, beside a plate of bread and butter or a cup of milk. This top shelf as well as all utensils for food should be kept exquisitely clean.

Meals of convalescent patients.

When the food is brought to the bedside all convalescent patients should be ready to sit up and eat their food at their lockers placed conveniently for them. A much better plan would be to have a long table in the middle of the ward or in the verandahs at which all patients who are allowed to leave their beds could sit on benches or chairs provided for the purpose, if there is no general dining hall. This would give an opportunity of airing the beds and also prevent the soiling of bed linen with greasy particles of food.

Meals of bedridden patients.

Patients confined to their beds are likely to require assistance in taking their food; this the nurse ought to be most particular about; if the patient can be propped up with bed rest or pillows, so much the better. Any solid food he is allowed

should be cut up for him; if he is unable to feed himself, he should be spoonfed; the nurse should never appear hurried in doing this, but should do it in a kindly manner; however, a nurse should never be beguiled into holding a conversation while feeding a patient, for it is a fatal way of consuming time and does not aid in the consuming of the food.

Quantity of food to be consumed at one time.

Sick people in many cases usually take small quantities of food at a time, and if given more than an ounce or two, they reject it. A spoonful retained and properly digested is of infinitely more value than a pint undigested. But, a mistake often made, especially by relatives is, when the Doctor

Intervals between food.

orders food to be given "a little and often," to force the poor invalid to swallow something every five or ten minutes; this is in no case necessary; for what is meant is every half hour, hour or two hours; for the stomach requires a quiescent interval.

Cleanliness of vessels used for food.

Another important point is that all vessels used for food should be thoroughly cleaned each time of using, as it is very objectionable for a sick person to be given milk to drink from a feeding cup smelling of broth or *vice versâ*. Broth or beef tea should be cleared of every particle of grease, and should have a little salt put in, but spices are not necessary and may be injurious. It is a good plan where the diet consists principally of milk and broth to give milk alone for several hours, and

Alternation of foods.

then broth—not to give alternate doses of each; for instance, give milk from 6 A.M. to 12 noon, broth from noon to 6 P.M. Milk again until midnight, and broth from that time until 6 A.M.

The time for food must also be considered with reference to hours for medicine. If a weak person be left long without food, instead of this increasing his appetite, it generally creates a disinclination for food; a stimulant, if allowed, is useful in this case, for it sometimes produces an appetite; a little brandy or rum beaten up with milk and a egg is sometimes ordered and relished by patients who feel exhausted and complain of having no appetite in the morning. There are other difficulties in the administration of food than those already noted; a patient with paralysis of the throat requires much care and patience on the part of the nurse, as he must be fed very slowly just like a young bird, with small morsels, and even then he will frighten a timid nurse by the way he splutters his food about and seems suffocating.

Time for food.

Appetite produced by stimulants.

Feeding of patients with paralysis of the throat.

There are artificial modes of feeding through a catheter by the nose, or mouth, through a tube by an opening made in the stomach, or through the rectum by nutritive enemata. In all these modes, nurses must obey orders to the very letter; in feeding by the catheter or tube an apothecary or student will probably perform the act of feeding, but the nurse will have to prepare the food according to directions and will also be required to keep the requisite apparatus, funnel and catheter, or tube, clean and ready for use, and should be competent to perform the actual feeding process, if necessary. Nutritive enemata are best given with a glass syringe, and must not exceed two or four ounces in bulk. They generally consist of milk and well

Artificial modes of feeding.

Nutritive enemata.

beaten egg, or strong jugged broths, but the particular formula will be given by the Medical officer, and must, of course, be strictly adhered to, and it must be carefully noted whether it be retained or not.

Food to be kept in a cool place. Boiled milk. Ice.

Food should not be kept continually close to a patient but in a cool place, and brought to him when required. Boiled milk will keep fresh longer than unboiled. Ice is a most acceptable luxury to the sick, and should not be wasted by want of care; it should be kept in a proper ice-box with a hammer and fine awl for breaking it.

OBSERVATION OF THE SICK AND NOTE TAKING.

In private nursing, in some cases such as midwifery, for instance, a nurse may act without the authority of a Doctor, but Hospital nurses are attendants on the sick under the orders of the Medical officers, therefore they are not only bound to do their duty to the best of their ability, but are equally bound to observe and note closely all that may occur in the patient's state during the Doctor's absence, and in special cases keep a written report according to the scheme in use in the Hospital to which the nurse may be attached. There will be a vast difference in the

Nurses' notes.

notes kept by different nurses, but let them be well written or badly, above all things they must be trustworthy reports; for nothing can be more dangerous than a misleading report due either to ignorance, carelessness or untruthfulness. When

Nurses' statements

a nurse is questioned by a Doctor with regard to

her patient, let her answer be concise and definite and given in a grave and respectful manner. She must not officiously give her own opinions or speak flippantly, but simply state facts; and she must cultivate her powers of observation until with experience she becomes a most valuable aid to the Medical officer by knowing what the most useful particulars are to bring to his notice, and also most valuable to the sick person by being able to judge what he is in need of intuitively; for many a patient may be unable to express his thoughts, either through mental or physical weakness.

to the Doctors with regard to the patients.

Powers of observation to be cultivated.

In observing a patient, the general aspect must be noted; in what position does he lie habitually, or does he find it gives him pain to lie in any particular position; is he gaining or losing flesh, are his extremities warm or cold, swollen or emaciated, is his countenance expressive of pain, anxiety or weakness; is it pallid, congested or flushed; are his mental faculties clear, is he restless and excited or listless, morose and melancholy, or cheery and hopeful? Does he become delirious at times or wander in his talk; are his movements tremulous and uncertain, with picking at the bed clothes, or does he lie in a comatose condition with stertorous breathing. The hour should be particularly noted when any change takes place. A nurse should be capable of noting state of tongue, pulse and respiration if required to do so. The tongue may be covered with a white fur, or be dry and glazed, or brown and cracked and sore, with *sordes* on the lips. The normal pulse rate is between 70 and 80 per minute but this may

Observation of patients.

Changes in the condition of patients.

State of tongue.

Pulse.

increase to nearly double the rate. By experience a nurse can gain some knowledge of the character of the pulse.

The pulse is taken generally at the wrist by placing the points of the fingers over the radial artery and counting the number of beats in a minute by the second-hand of a watch.

Respiration.

The act of respiration consists of inspiration and expiration and occurs 18 or 20 times a minute in the normal condition. To register the number of respirations, a watch with a second-hand should be taken in one hand while the other is placed flat over the pit of the stomach where the diaphragm, the large muscle between the chest and abdomen, is, and the number of heaves counted in a minute. There is much to be noted with regard to respiration, for it may be slow and gasping, or quick and shallow accompanied by pain, stertorous or otherwise, or there may be a feeling of impending suffocation with a bluish look about the face.

Cough and expectoration special points to be noted.

Closely associated with the act of respiration are two important things for observation, *viz.*, cough and expectoration. A cough may be dry, that is, without expectoration, or moist with expectoration; it may be "hacking" and continuous, or paroxysmal; it may be harsh like barking or have a hollow and cavernous sound. It may occur particularly in the morning or be troublesome only at night. The position the patient lies in may affect it; these and other characteristics must all be noted.

Expectoration is the act of coughing up matter

from the lungs and air passages, and the matter expectorated is called sputum. It may be frothy as in bronchitis, purulent (like pus), rusty or prune juice color, streaked with blood, or entirely consisting of blood, this last constituting what is termed haemoptysis. A nurse should note whether blood is coughed up or vomited; also the quantity of matter expectorated. A patient's appetite or want of it should be carefully noted, whether it is capricious or ravenous, vitiated, or healthy and normal; also the degree of thirst should be observed. Effect of diet, stimulants and medicine must be noted with great care.

Patient's appetite.

Thirst.

Effects of diets, stimulants and medicine.

It is a more difficult thing than may at first appear for a nurse to judge correctly the amount of sleep a patient may get, for it is a frequent occurrence to find patient and nurse disagreeing on this point; where a nurse has a number of patients under her care, she cannot be near each one at all times and it may happen that the patient has his eyes closed only, and, as we hope the nurse's step is light and noiseless, she may pass by unnoticed by him, though not because he is asleep, or he may have short snatches of sleep during the night which leads him to say he heard "every hour strike." With regard to the noting of pain, the statements of patients have to be taken, but a nurse will soon learn from the general manner and character of a patient how much he can be relied on. With regard to the degree of suffering, a nurse will also have to question as to the nature and locality of the pain, also the time of attack, duration and cessation, its character,

Sleep of patients.

Pain.

Patients' statement with regard to pain.

Nature and locality of pain.

whether it is dull, aching, stabbing, smarting, burning, tingling or throbbing, to note carefully if alleviated by treatment or not. The condition of the skin requires close observation in most diseases; is it moist, or perspiring or dry; is it burning, clammy and cold, or of a natural warmth; is there pallor, blueness of the extremities or redness of any particular parts? The hours of any change should be carefully noted, as also the appearance of any eruption or rash, and it is only from constant observation a nurse will be able to give reliable information. A nurse will have to observe the quantity and character of urine passed, or whether there is suppression or retention, and it is usual in many cases for a specimen of the urine to be kept for inspection by the Medical officer.

The skin and its condition.

Urine.

Bowels.

The state of the bowels is another very important point; the number, the color, consistence and nature of the stools, and whether there is pain, griping or straining at the time of having the motion from the bowels should all be noted. It is the duty of the nurse to see for herself the evacuation and notice whether it is offensive or not, as it is most important that a correct report be given; also any matter vomited should be seen and examined by the nurse. If there be retching without any vomited matter, it should be noted. In surgical wards it is a nurse's duty not only to prepare the different dressings according to orders but sometimes to apply them; where this is the case, she must note the appearance of wounds or sores and be able to report correctly whether the discharge

Observation of evacuations.

Vomited matter.

Surgical dressings.

Observation of wounds.

has increased or diminished since last dressing, whether it has an offensive smell or has otherwise changed its character; also whether there is hæmorrhage or sloughing, or an erysipelatous blush at the edges, and what appearance the surface presents.

Record of temperature.

A record of the temperature of a patient is usually kept by the nurse. This is a most important and necessary duty and must be done with great care and accuracy, otherwise it will be worse than useless. This is especially the case where a nurse is directed to keep a chart. The temperature should always be taken at the specified hours. The normal temperature of the body is about 98° 4; a persistent rise above 99° or a continual depression below 97° is indicative of disease. The little strokes between the degrees on a thermometer reckoning as fifths or tenths of a degree must be carefully noted. The best kind of clinical thermometers are self-registering, that is, they have a small detached piece of mercury at the top of the ordinary column to serve as an index.

Method of taking temperatures.

Before taking the temperature, this index should be gently shaken down to about 96°. This can be done by taking the top of the stem firmly in right hand and giving a long swinging movement a few times. A thermometer should never be jerked or tapped as it soon puts the index out of order. When the mercury rises, it drives this index before it and when the mercury falls, the index remains showing by its uppermost point, the highest temperature reached.

As the most convenient place the thermometer is generally introduced into the armpit or axilla (or it may be taken in the mouth or rectum in which places it will register about half a degree higher than the axilla or groin). The axilla should be first wiped dry and then the bulb of the instrument placed in the axilla, the arm should be held closely to the side with the hand lying over the chest. It should be kept in this position from 5 to 7 minutes. In removing the thermometer from the armpit, the nurse should be careful not to shake it or to allow the bulb to come into contact with a warm poultice or fomentation and it should be washed in carbolic lotion after use.

Times for recording temperatures.

The best time for recording temperatures is in most cases, before 8 o'clock in the morning and after 6 in the evening, that is when only necessary to be taken twice daily; a Medical officer may, however, require a record as often as every two or four hours in special cases. The sensations of heat and cold as felt by the patients do not always coincide with the degree of temperature, as, in the most serious cases, the skin may be cold and clammy while the temperature is excessively high. A nurse must remember not to take her patient's temperature in the mouth immediately after food has been taken.

Sensation of heat or cold with regard to temperature.

CHAPTER II.

MEDICAL NURSING.

MANAGEMENT OF HELPLESS PATIENTS—PASSING THE CATHETER—BED SORES, PREVENTION AND CURE—ADMINISTRATION OF MEDICINES—BATHS.

MANAGEMENT OF HELPLESS PATIENTS.

Patients may be helpless from an injury or from disease.

A surgical case after operation is helpless, not necessarily from inability to move but from the necessity of absolute quiet and rest to facilitate his cure.

Helplessness with or without pain.

A medical case classed as 'helpless' may be one of paralysis, where no pain is suffered by movement, or one of rheumatic arthritis where every joint is or may be exquisitely painful, or a dropsical case where the patient has to be kept in a sitting posture all the time, for the immediate death of one of these cases may be caused by the sudden lowering of the head and shoulders. A patient suffering from pneumonia or pleurisy, will usually rest most easily on the affected side, for it will allow of the healthy lung having freer movement.

Position of helpless patients.

Handling of, and thought for, helpless patients in surgical cases.

Duties of a nurse owards a helpless patient.

In all cases of helpnessness, the nurse will have "to think for her patient." The helpless surgical case may be only a simple fracture of the femur, the patient otherwise in robust health but compelled to remain in one position for from three to six weeks or even longer, or it may be a case of multiple injury, the patient probably unconscious and in any case requiring the greatest skill in handling to prevent further injury. Then there are important operation cases, rendered helpless through the exigencies of their cases, hernia or obstruction of the bowels, liver abscess cases, uterine cases, etc. The orders from the Surgeon will have to be rigidly adhered to and the patient will be compelled to remain on his or her back for a very considerable time. The nurse must get a clear idea of the nature of the injury or wound and have the necessary assistance when attending to the wants of these patients.

Cleanliness.

Changing of linen.

Urinal

Absolute cleanliness must be maintained by carefully sponging the patient daily; and, without turning the patient, a nurse can rub the shoulders and buttocks with a little alcohol in the palm of her hand; she can also change the drawsheet by having an assistant to slightly raise one side of the patient while she rolls the soiled drawsheet close up following it by a roll of clean drawsheet and carefully drawing it through herself at the other side while the assistant does the raising of that side; this is all that will be required for the first few days while the patient is in a critical state, he must also have a bottle to pass urine in, and if the

and pad for evacuations.

use of bed-pan is not allowed, a pad can be made of strong brown paper covered with layers of tow to receive evacuations from the bowels.

Attention to feeding.

His food must be carefully attended to, and his medicines, if any, given regularly; a helpless patient such as this, is considered a "special" case, and a special report form with 'double' chart will have to be kept night and day with great care and regularity until such time as the Surgeon thinks it no longer necessary.

Special report and chart.

In less helpless cases where the nurse is permitted to roll the patient on his side, or change his bed clothes, or even put him on a fresh bed, there will be still great care needed as there are many cases which can be nursed to recovery if the patient be kept in a recumbent position that would prove fatal if permitted to sit up or get out of bed, as in typhoid and acute rheumatic fever.

Method of washing.

In these cases, absolute cleanliness is comparatively easy. The patient will feel refreshed and grateful by being sponged morning and evening with cold or tepid water. The nurse must take great care in washing a helpless case not to exhaust the patient. In a warm climate like this, the patient may be left between sheets, his clothing removed, the nurse having basin, water, towel, soap (if desired) beside the bed. She puts the towel (a small one for preference) over her right hand and fixes it with a twist round her wrist. She then dips the part over her hand in the basin of water and squeezes sufficient water out of it to prevent any

Report of Patient **No.** **Ward.**

Time.	Temperature.	Pulse.	Respiration.	Motions.	Urine.	Treatment.	Nourishment.	REMARKS.

Date. *Nurse on duty.*

SPECIAL TEMPERATURE CHART

Month 189 .

42-5

Name Age Disease Result

Day of Disease.																																										
Date ...																																										
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dripping, then gently rubs it over the patient's face and ears; she again squeezes it out of the water and sponges his face and ears with it; she then takes a dry towel and thoroughly dries the parts which have been wetted; the chest is next done in a similar manner, then each arm and each leg, no exposure of the patient need be made at any time. He is then gently turned on his side and his back sponged and dried and, lastly, between the thighs is done. A good sized lump of tow is often used instead of a sponge or small towel in washing patients, and is very useful for washing dirty places such as the heels and knees of workmen and mechanics, or those who have not been in the habit of washing or bathing; it is sometimes necessary to use a little spirits of turpentine in these cases.

Tow as a substitute for a sponge.

Turpentine for cleansing.

In the case of patients who pass their motions involuntarily, tow is the best thing for cleaning purposes with plenty of soap and warm water. When a weak patient is turned on his side, an assistant should support him by placing a hand on the shoulder and another on the hip or buttocks. The fingers alone should never be used as they will bruise a delicate skin and the palm of the hand gives a firm support. If a nurse is alone with her patient, she must prop him over with pillows taking care he is not too near the other edge of bed; having dried the back carefully, alcohol is to be rubbed on and some Fuller's earth or starch powder applied on shoulders and over sacrum or any points which may appear red from pressure. One side of

How to support a weak patient when turned on his side.

Changing of sheet under sheets and mackintosh.

soiled sheet is then rolled up lengthways against the patient's back, the clean sheet, tucked in smoothly at the side, then the draw mackintosh and drawsheet; these are rolled tightly against the soiled sheets at patient's back and the patient assisted to come back gently over them. This will leave them free at the other side to be adjusted and tucked in. In some cases, particularly surgical, or where the patient maintains a sitting posture, the sheet can be changed from top to bottom instead of from side to side.

Changing top sheet.

The top sheet is changed by a clean one being gathered up loosely crosswise and laid across patient's chest when it can, by raising the soiled sheet, be quickly drawn down to foot of bed. This is done quickly and deftly, as in some cases, the pressure of a sheet folded on the chest is disagreeable to the patient.

Cleansing of mouth.

The patient's mouth can be cleaned with weak Condy's fluid; a fresh piece of lint torn into squares of about an inch, wrapped round the nurse's first finger or round a small piece of stick (if the gums are not very tender) dipped into Condy's fluid and rubbed over first the front teeth, a fresh piece of lint then used for the side teeth, another fresh piece for tongue; a slice of lime is very cleansing if sucked or rubbed over the tongue; a little glycerine put on the lips with a feather will prevent them cracking when parched from high fever. A nurse will often find, where there has been high fever for any time, the whole mouth covered with brown

Sordes.

sordes, and if she is not careful in keeping the teeth, gums, tongue and roof of the mouth clean, the mouth

and lips will become sore and bleed freely. This is almost entirely due to neglect, as nurses often only half clean patients' teeth through want of care. A towel should be placed under patient's chin during the washing of his teeth, and if possible, he should be encouraged to rinse his mouth afterward.

Hair and nails.

His nails should next be cleaned and his hair brushed; if vermin should appear in the hair, it ought to be cut close and the skin rubbed daily, very gently, with a small lump of tow steeped in carbolic lotion with a drop or two of spirits of turpentine in it.

Change to another bed.

When it is necessary to change the bed or bedding of a helpless patient, another bed should be prepared and put alongside his, two attendants at the foot and two at the head of bed can then easily lift the patient on his sheet; if he wishes to be moved higher or lower on his bed, this can most easily be done by two persons lifting him on his draw mackintosh or drawsheet, as his head need not be raised from the bed; but any injured part must be supported separately. Another way for changing a patient from one bed to another is for the attendants to stand two at either side and lift the patient and carry him off the bed over the foot of it and on to the other bed in similar manner except that he is carried head foremost over the foot of the other bed. It is very unseemly to see attendants scrambling over their patients' bed as is sometimes done.

Air beds.

If a patient be likely to remain long in bed, he should have an air bed, and small air pillows are

useful to take pressure of particular points. A nurse should know how to arrange pillows for the bed comfortably, the under ones to be a little under the shoulders and neck, while the upper one supports the head. The clothing should be regulated for the patient, additional blankets kept at hand if needed, and removed from the patient at once when not required, as the extremities are apt to be cold from weakness and slowness of circulation.

Arrangement of pillows.

Clothing of patient.

Feeding.

In giving food, a feeding cup, spoon, or bent glass tube should be used and the nurse careful that no slop is made on the bed or bedside table.

Fresh air without exposure.

Golden rule with regard to sick people.

The ventilation of the ward should be seen to, so that the patient has a sufficiency of fresh air without exposure to draughts; but in the charge of helpless patients the golden rule should be adhered to "Do unto others as you would they should do unto you." Do not hurry when attending them, do not express disgust at their misfortune; be cheerful, do not gossip; and perform willingly the duties of your office, you will find repayment in the gratitude and respect which you will inspire.

In cases where movement is painful, a nurse must devote plenty of time and exercise great patience. In cases of paraplegia where evacuations are passed unconsciously, a dose of castor-oil or an enema occasionally is necessary. Nurses may also have to pass a catheter every six or eight hours and by a little skilled management, these patients can be kept dry and comfortable. Zinc

ointment is a useful application also in these cases to prevent bedsores which when once formed are almost impossible to heal.

PASSING THE CATHETER.*

The nurse is occasionally called upon to relieve an attack of retention of urine in women or children by the introduction of a short catheter, to draw the water off. This should be done without exposing the patient.

Method of passing catheter in females

For females the simplest plan is to make the patient lie upon her back, with the thighs separated and slightly drawn up. After thoroughly cleaning the parts about the urethra, the nurse, having oiled the second finger of her right hand, should then introduce it between the labia, close to the arch of the pubes, with the palm of the hand upwards; along the finger, as on a director, she slips the instrument (previously well oiled and warmed if necessary) held lightly in the left hand. Thus the catheter cannot enter the vagina, while it will almost certainly slip into the orifice of the urethra.

It will easily slip into the bladder, provided there be no obstruction. This may be known by feeling its point move freely in a cavity, and by the urine flowing through it, for which a receptacle should have been already placed to receive it.

Probationers to be taught to

A nurse will always find it easier to teach her probationers "how to pass the catheter" on a child than on a woman. Screens should be placed round

* From Miss Florence Lees.

pass the catheter on children.

the bed, as it will be necessary to expose the patient. Only *practice* can enable a nurse to put her hand under the sheet and introduce the catheter into the urethra without exposure.

Passing catheter on male children.

For male children the catheter having been warmed, well oiled, and being held loosely in the right hand, should be introduced into the orifice of the urethra, and passed gently along the canal, the organ being held with the left hand at the same time. When the point of the catheter has reached the membranous part of the urethra then, by depressing it *with the utmost gentleness*, and keeping accurately in the middle line, the instrument will usually easily slip into the bladder, provided there be no obstruction.

The point of the catheter often stops when it has reached the membranous part of the urethra, and if the depression of the point does not cause it to pass on, it should be withdrawn for a short distance, and again glided on in the same manner. If this does not succeed, the forefinger of the left hand, having been oiled or greased, should be introduced into the rectum, and its palmar surface brought in contact with the convexity of the catheter. Then by raising this part of the instrument, and at the same time gently pushing it forwards, it will in most cases be tilted into the bladder. This may be known by feeling its point move freely in a cavity, and by the urine flowing through it.

When a catheter is to be removed from the bladder, its handle should be laid hold of and drawn towards the abdomen, the instrument at the same

time being lifted from the urethra. The point of the finger should at the same time be pressed on the orifice, to prevent any fluid escaping from it as it leaves the urethra.

Washing out of and injecting fluids into the bladder.

It is sometimes necessary to wash out the bladder or inject fluids into it; for this purpose a full-sized catheter is required, and a large syringe or India-rubber bag fitted with a nozzle and stop-cock. Great gentleness should be used, especial care being taken to steady the catheter when working the syringe, so that its extremity will not be forced against the walls of the bladder. It should be remembered that in elderly women who have had children, as well as in pregnant females, the meatus is often drawn into the vagina, somewhat under the symphysis pubis.

BEDSORES, PREVENTION AND CURE.

Bedsores generally preventible.

Bedsores are largely preventible but not entirely so, for much depends on the circulatory system. If the heart is weak and the blood pressure feeble, it is easy to arrest the blood flow through the tissues and so cause stagnation in those parts where bedsores are apt to form, namely, over projecting bones such as the sacrum, hips, elbows, shoulders and heels; a restless patient (as in those suffering from chorea) may have a bedsore caused by mere abrasion of the skin.

Parts in which bedsores are apt to form.

Cases specially liable to bedsores.

In very old people and in cases near death after any wasting disease, or particularly in cases of cerebral disease, what may be termed bedsores will suddenly appear on the parts named, or over ribs or

other parts lain on; these tend to increase very rapidly and are like large blebs from which a watery fluid escapes on cutting and the flesh looks dark underneath. Surgical cases get splint sores from the pressure of points not properly padded, but the typical bedsore, caused by long continued pressure on one point, is first noticed as a slight blush; this, if not attended to, assumes a bluish tinge and a slough more or less deep forms which on separating leaves a suppurating wound, which is extremely difficult to heal. Where a patient is obliged to keep to one position in bed, the parts subject to pressure ought to have the particular care of the nurse to prevent such sores forming.

First appearance of bedsores.

Consequences if not attended to.

In all cases, these parts should be washed carefully twice daily with warm water and soap, then well dried, alcohol such as methylated spirits, brandy or eau-de-cologne rubbed in to harden the skin and friction used to promote circulation. The nurse must not think it is sufficient to give a "dab" of spirits to the part for friction is quite as much needed; to keep the part dry is also important, and this can be done by rubbing some Fuller's earth or zinc or starch powder mixed (the toilet powders bought in shops are not always good) over the parts, and, if the patient passes urine involuntarily and is apt to get wet in that way, oxide of zinc ointment is the best application as it prevents the fluid irritating the part, some fresh ointment being rubbed over each time the patients' drawsheet requires to be changed; an air or water bed or pillow is useful in preventing pressure in bad cases, or an

Prevention by— 1st. Washing.

2nd. Application of spirits.

3rd. Keeping the part dry.

4th. Rubbing on of powder.

Oxide of zinc ointment in cases of incontinence of urine.

Air bed and pil-

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arrangement of pillows to change the points of pressure. *lows to prevent pressure.*

In restless patients where there is any sign of roughening or abrasion of the skin, all general directions previously named being carried out, further mischief may be prevented by circular pieces of strapping nicked round the edges being smoothly applied at the worst points. These need not be changed as long as they remain smooth, that is, generally speaking, three or four days; or collodion or white of egg may be painted over the part. The watery blebs which appear shortly before death, no treatment can prevent and there is no time to attempt a cure. When the fluid escapes from them, a dressing on lint may be applied, according to the Doctor's orders.

Strapping in restless patients.

Collodion or white of egg painted over the part.

In splint sores, the only preventive is to have the splints thoroughly well padded before being put on as in all cases they have to remain a considerable time before change or removal.

Splint sores.

When once a slough has formed, or a bedsore becomes an open wound, the treatment passes into the hands of the Medical officer, and the nurse must learn by observation the correct way of reporting on its progress.

An air cushion with a hole in the centre is useful; if possible, a mackintosh immediately under the sheet or drawsheet should not be used as it tends to retain the moisture from perspiration in the sheet and so softens the skin.

Air cushions. Mackintosh sheets not advisable.

Charcoal poultices are often ordered to cleanse

Poultices

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and dressings. and purify the sore; antiseptic and stimulating dressings are sometimes applied. The sore should be irrigated each time of dressing. Carbolic lotion, tincture of benzoin, carbolic or eucalyptus oil, boracic ointment, or zinc ointment may be ordered. The piece of lint with whatever dressing is ordered, should be the exact size of sore. This should be covered with a little oiled silk or oiled paper something larger than the dressing; over this a double fold of dry lint, the whole dressing fastened smoothly and firmly on with strips of strapping or a circular piece which must be considerably larger than the dressing and slit round the edges to fasten more securely.

A nurse should on no account put alcohol where the skin is broken as it causes great suffering to the patient.

ADMINISTRATION OF MEDICINES.*

Labelling bottles. Medicines, when being dispensed, should be carefully labelled with the name of the patients for whose use they are intended, and the directions for use.

Necessity for reading label. Those entrusted with the administration of medicine should bear in mind that it is criminal to give medicine to a patient without first carefully reading the label. If this be not done, mistakes may occur; either an overdose may be given, or poisonous drugs intended for external use be given internally, often leading to the death of the patient and the consequent punishment of the attendant.

* From Manual for the Medical Staff Corps.

Pouring out medicine.

As a general rule, a bottle of medicine should always be shaken before pouring out its contents, and, with a view to the preservation of the label, it should while the medicine is being poured out be held with the labelled side upwards; it should not be left uncorked any longer than is absolutely necessary, as, very frequently the active principle is volatile, and is thus lost; for the same reason the dose should be swallowed as soon as possible after it is poured out.

When the further use of a medicine is stopped, the unused portion, if any, should be returned to the dispensary at once.

It may be taken as a general rule, except when express orders are given to the contrary, that a patient should not be roused from sleep for the purpose of taking medicine.

Tact in giving medicine.

No small display of tact on the part of the nurse will be necessary, sometimes, in order to induce refractory patients to consent to swallow their medicine; on these occasions, however, the nurse must not fail to remember that great tenderness of manner as well as great firmness are required of her and on no account whatever must she treat the patient roughly.

The following are some of the more useful forms in which medicines are prescribed:—

Mixtures.

These are medicines in a liquid form intended for internal use by the mouth; they vary in quantity from one to sixteen ounces, and are given in doses varying from drops to wine-glassfuls. The exact

dose should be measured in a graduated glass measure. The subjoined table will assist in the use of these measures:—

1 drachm		= 1 tea-spoonful.
2 drachms		= 1 dessert-spoonful.
4 ,,	= ½ ounce	= 1 table-spoonful.
2 ounces		= 1 wine-glassful.
60 minims or drops		= 1 drachm.
8 drachms		= 1 fl. ounce.
20 ounces		= 1 fl. pint.

Draughts. These vary in quantity from half an ounce to two or more ounces, and the whole is generally directed to be taken at once. Draughts of castor-oil are usually administered floating in peppermint water.

Pills. The small round masses of medicine known by this name are best administered by directing them to be placed one at a time on the tongue and then a mouthful of water to be swallowed, which generally carries the pill down along with it; when any further difficulty arises, the pill may be enclosed in a crumb of bread, and then washed down with a mouthful of water. Care should be taken that the lids of pill boxes do not get transferred from one to the other.

Powders. These may vary in quantity from a grain to a drachm or more; when small, the contents of the paper is to be placed on the back of the tongue and washed down with water; when large, the powder should be mixed with water in a mug or tumbler, stirred up with a spoon, and given without delay to the patient to drink.

A Seidlitz powder is a powder consisting of two parts: a large and a small powder; the contents of the larger package are to be placed in a tumbler with 6 ounces of water and stirred; the contents of the smaller are then to be added, and the whole again stirred and drunk off while effervescing. **Seidlitz powder.**

A Bolus is a soft mass of medicine generally dispensed on paper; it should be scraped off the paper, placed on the patient's tongue, and washed down with a mouthful of some fluid. **Bolus.**

An electuary is a form of medicine generally made up with molasses or honey, and is sent up in a thick state in a mug or pot; dose usually a tea-spoonful. **Electuary.**

An emetic is a medicine given to produce vomiting. The most useful, and at the same time safest, forms of emetics are—(1) mustard, and (2) ipecacuanha. The emetic dose for an adult of (1) is a table-spoonful of the powdered mustard, and (2) twenty grains of powdered ipecacuanha. Either, when mixed with a small tumblerful of lukewarm water is given to the patient to drink; a vessel at the same time should be placed in readiness by the patient's side as vomiting may come on rather suddenly; the action of the emetic should be encouraged by draughts of lukewarm water after each act of vomiting. **Emetic.**

This is a wash for the mouth and throat. A table-spoonful is to be taken into the mouth, the head thrown slightly back, and the fluid set in motion by breathing through it, at the same time **Gargle.**

taking care not to swallow any; this is to be repeated at least twice on each occasion.

Inhalation

When a patient is directed to inhale the vapour of a medicine, it is to be put into a vessel called an inhaler, which is then to be filled up with hot water; the patient will now inhale the vapour arising from the vessel through the tube placed at the top of the inhaler.

Enema.

When either medicine or nourishment in a fluid state is administered by the anus, this is called an enema. It varies in quantity from one to twenty, or more ounces, according to the purpose for which the enema is intended; nourishing enemata (beef tea, brandy, &c.), or those prescribed to allay pain, are usually small in amount, while on the other hand those intended to clear out the contents of the bowel are larger. The instrument by which the fluid is driven into the bowel likewise varies in size, a small India-rubber bag for small enemata, a large metal syringe, or the enema apparatus for those large in amount. As a precautionary measure it would be well to try if these instruments are in good order before attempting to give an enema.

To give an enema, the patient should be placed on his left side in bed, his hips brought out nearly to the edge of the bed, and with a waterproof sheet, or folded cloth placed under him; in this position the pipe or nozzle of the apparatus (well oiled) should be carefully introduced into the anus to the extent of about 2 inches. This done, the fluid, previously heated to a temperature of 98° Fahr. by standing the vessel in a basin of hot water, is to be

forced slowly up the bowel and the patient directed to resist the inclination to strain which immediately follows the introduction of the fluid (by keeping a folded towel pressed against the anus); otherwise the fluid, if large in quantity, will come away without the object in view having been effected. Uncovering the patient more than is absolutely necessary during the operation should be avoided, nor should the bed-clothes be wetted; otherwise much discomfort may be caused to the patient. A night stool should be placed conveniently in readiness.

This is a medicine mixed up with lard and wax, and made to assume a conical form to facilitate its introduction into the anus. The patient is to be directed to oil the forefinger of the right hand and pass it up the anus, or if from any reason unable to do so then the nurse must do so herself. The patient should be placed in bed in the position already described under "Enema," the nurse then having oiled the forefinger of her right hand, will push the suppository very gently, point foremost up to the extent of about 2 inches into the bowel and subsequently slowly withdraw her finger. A suppository.

These are medicines in a fluid state, as a rule meant to be used as a wash for the urethra. They are introduced by means of a syringe. Injections.

Medicines in a fluid state, used externally as in the application of evaporating dressing, are called lotions. They should be labelled "For external use only." The quantity required for use should be poured into a gallipot in order that the lint Lotions.

required for the dressing may be properly saturated. "Black wash" is a form of lotion used in the treatment of syphilitic sores.

A collyrium. A collyrium is an eye lotion. It is employed to bathe the eye either with a sponge, or by means of a vessel called the eye bath, or by the eye douche, or lint may be wetted with it, and then laid over the eye as an evaporating dressing.

Note.—As regards collyria, every patient should have his own appliances, and retain them exclusively for his own use.

Eye-drops. A quill may be used by the nurse for dropping these into the patient's eye. It should be cut the shape of a penholder, and a small hole made at the upper part of the barrel. To charge the quill:—the quill is introduced into the bottle of eye-drops and the forefinger placed over the small hole; it is then withdrawn and a portion of fluid with it. To introduce the drops into the patient's eye:—throw the patient's head slightly back, draw the lower lid downwards with the fingers of the left hand; now holding the end of the charged quill over the eye, the nurse will allow air to enter the barrel, (by the small hole) when the required number of drops will deposit on the inner surface of the lower lid and the lids then be allowed to close.

Liniments When a remedy in a fluid state is applied to a part by rubbing, it is called a liniment. The bottle (to prevent mistakes) should be labelled "For external use only." To apply a liniment, pour out a small quantity in the palm of the hand, then rub it over the part affected until the liniment is absorb-

ed; a small quantity more will then be taken, and the rubbing repeated for the required length of time. Many liniments contain irritating substances which, though not sufficiently powerful to irritate the skin over the ordinary parts of the body, yet when brought in contact with parts where the skin is thin, such as the perineum, eyes, &c., cause much smarting and irritation; a safe rule, therefore, is to wash the hands thoroughly after using a liniment, and to caution the patient against the possibility of such an occurrence. Some liniments, as for example, iodine, must be painted on the part with a camel hair brush, and not rubbed. Croton oil liniment should be rubbed in morning and evening until a crop of pustules appears; one application however usually suffices.

When ointments are applied to a part by rubbing, the process is called inunction. One of the ways of introducing mercury into the system is by inunction of mercurial ointment. The parts selected for the purpose are the inside of the thighs and the armpits. A piece the size of a bean is to be rubbed into the skin once or twice daily with the palm of the hand, gentle and steady friction being continued until the ointment is exhausted, a few turns of a flannel bandage may then be passed round the part so as to protect the bed linen and favour absorption. During the treatment, symptoms, such as fœtid breath, swollen gums, dribbling of spittle from the mouth, may arise, these should be reported without delay to the Medical officer. Inunction

Sulphur ointment is rubbed in during the treat-

ment of itch (scabies). Tartar emetic ointment is rubbed in, as a counter-irritant, once or twice daily until a crop of pustules appears.

Caustics.

Caustics are frequently used by the Medical officer for touching ulcers, and producing eschars; those must commonly in use are nitrate of silver, nitric acid, potassa fusa, and sulphate of copper.

Nitrate of silver is in sticks, and is kept for use in a quill or caustic holder. It should be washed and dried with a piece of lint or paper after being used, and should not be placed in contact with any metal, as such decomposes it, nor should it be allowed to touch linen, or the hands, as it produces a dark stain. It is occasionally necessary to point a piece of caustic. To effect this, it should be rubbed on wet lint until it is ground to a point. It should never be attempted to cut or scrape it.

Nitric acid is generally applied by means of a piece of wood, one end of which is pared off thin and flat, the surrounding parts being protected by oil or wax.

Sulphate of copper is used in crystals. The crystal should be ground on a fine stone to a chisel point, and tied in a cleft cut in the end of a piece of wood.

A mustard plaster.

A mustard plaster is used as a counter-irritant. To make a mustard plaster, mix some fresh mustard powder into a paste with cold water, and spread the paste in an even layer on stiff brown paper of the required size. This is then applied to the part, smoothed over, and pressed to the skin

with the hand. It is allowed to remain on for a quarter of an hour and if the mustard is good, a burning sensation is produced and the skin is reddened. After the plaster is removed, any mustard adhering to the skin must be washed off; this inconvenience may be obviated by laying a piece of thin tissue paper or of fine muslin over the mustard plaster when prepared, so as to intervene between the mustard and the skin.

A mustard poultice. A mustard poultice is frequently employed when the severe action of mustard plaster is not required. To make a mustard poultice: mix 2½ ounces of linseed meal gradually with half a pint of boiling water, then add 2½ ounces of mustard with constant stirring; the pulp is then spread out on tow in the same manner as a linseed meal poultice. It is allowed to remain on for from four to twelve hours.

A blister. A blister is made by spreading blistering plaster upon stiff brown paper or adhesive plaster of the size ordered. It is applied to the part in order to produce vesication or watery blebs, and so to act as a counter-irritant. To apply it the plaster is held for a moment before the fire, if in cold weather, and then being laid on the skin, a few strips of adhesive plaster are laid over it to retain it in position and prevent it slipping. A bandage may be loosely applied over the whole for greater security, but should not be so tight as to prevent the plaster being raised by the accumulation of fluid in the blebs underneath it.

Unless directions be given to the contrary, the

blister should be removed and the part dressed after a lapse of twelve hours.

The bandage and strips of plaster being loosened, the blister is gently raised from one side and removed. Several openings are then made in the blebs with a pair of scissors, and a vessel placed in a position to receive the fluid which escapes.

This done, a dressing of simple ointment spread upon lint is applied, and renewed twice or three times daily until the surface is healed.

Occasionally, when the blister is removed and the blebs have not risen well, a soft linseed meal poultice is applied which has the effect of making them rise.

Moreover it is sometimes necessary to increase the effect of a blister by not allowing it to heal up at once; in other words to keep it open. In this case it will be dressed in a similar manner, except that the old skin should be completely removed, and in place of simple ointment, such other ointment will be spread upon the lint as may be ordered. This will be continued until orders are given to allow the sore to heal, when simple ointment is to be applied as first described.

Blistering fluid is also employed sometimes for producing vesication. It must be painted on the part with a camel hair brush.

Leeches. Leeches are employed to draw blood locally. Some little skill is necessary in their application, otherwise they will not bite. The part to which they are to be applied should, first, be washed thorough-

ly clean with warm water and soap, then with clean cold water, and, lastly, well dried. The leeches, before being applied, should be well cleaned and dried between the folds of a soft cloth; and when they are to be applied to the mouth, or where the temperature is high, it is recommended to put them into tepid water for a few minutes.

To apply them, the box containing them may be inverted over the part, and the leeches, thus confined, readily bite if the part has been properly prepared.

Another very ready method of applying them is first to place the number intended to be used in a hollow in a towel folded like a napkin, then to turn the towel, with the leeches in the hollow upon the part prepared for their reception, and thus with the towel over them confine them with the hand until they bite, when the towel may be removed. Each leech may also be taken in the fingers and its head directed towards the spot where it is wished to bite, and in this way it will often take hold when all other methods have failed.

If none of these methods can be pursued, as when it is necessary to apply them in the mouth, or to confine them to a very small space, then a glass tube, into which each leech is put separately with its head towards the small end, should be brought in contact with the part, and there retained until the leech bites.

Leeches, when full, drop off spontaneously. They should never be pulled off, as their teeth are apt to be left in the wound and cause inflammation.

The part should now be well bathed with warm water to favour the bleeding from the bites, and after this, if more still is required to be withdrawn, a soft poultice may be applied. It occasionally happens that leech bites bleed profusely and exhaust the patient, consequently it should be seen that all bleeding has ceased before leaving the patient for the night. Should bleeding continue longer than is desirable, pressure upon the leech bites with the fingers, or a small compress tied firmly on them will usually arrest it. Should these means fail, the Medical officer should be at once informed of the circumstances.

It is undesirable to use leeches more than once.

Application of ice.

When ice is to be applied, it should be broken into small pieces and put into a bag either of oiled silk or vegetable parchment, or a bladder, and laid over the part, the bag should not be more than half filled; it should be carefully tied, and it should be removed as soon as the ice is all melted.

Hot water jars.

Jars containing hot water are frequently applied to the feet and legs to restore temperature. They should be carefully corked, wrapped in a roll of flannel, or fold of a blanket, and then applied; great care is necessary lest the heat be too great and the parts be burnt, especially if there is any want of feeling in the part, or insensibility of the patient.

Hot bricks are occasionally used for the same purpose.

Fomentations.

Fomentations are applications of hot water to a part. To apply a fomentation:—two pieces of

flannel, each a couple of yards in length, or two pieces of spongio-piline, are immersed in a bucket of hot water placed by the side of the patient's bed; one piece is taken out, and by means of a towel, wrung out nearly dry, and it is placed as quickly as possible on the part to be fomented, and covered by a piece of waterproof sheeting, the second piece is wrung out, and prepared to replace the first as soon as it cools. The process will be continued for the space of at least twenty minutes, unless otherwise ordered. Oil of turpentine is sometimes directed to be sprinkled over the flannel or spongio-piline each time after being wrung out.

Either cold or tepid water may be used.

Poultices are used as dressings, either with a view to produce a soothing effect or as deodorants; of the former kind are linseed meal and bread poultices; of the latter, charcoal poultice. Poultices.

Mix 4 ounces of linseed meal gradually with half a pint of boiling water, then add half an ounce of olive oil, with constant stirring. Some tow neatly teased out, of the required size is placed on a table, the poultice is turned out upon this and spread out with a spatula in a layer three-quarters of an inch thick leaving a margin of tow uncovered about an inch in width. A poultice should be considerably larger than the sore or swelling to which it is applied, and it should be renewed frequently. Care should be taken not to apply it too hot to a tender surface. To make a linseed meal poultice.

Pour boiling water on bread crumb; let the vessel stand by the fireside for five minutes, then To make a bread

poultice. strain off the water, beat the whole up into a pulp, and treat in the same manner as linseed meal poultice just described.

To make a charcoal poultice. Soak 2 ounces of bread crumb in half a pint of boiling water for ten minutes near the fire, then mix and add 1½ ounces of linseed meal, gradually stirring the ingredients that a soft poultice may be formed; mix with this a quarter of an ounce of charcoal and sprinkle the remainder (a quarter of an ounce) over the surface of the poultice.

BATHS.

These may be either *local* or *general*.

In *general* baths the whole of the body, excepting the head, is exposed to the action of various agents.

Baths may be classified as follows:—

- I. Water.
  - A. Simple ...
    - Cold—
      - Ordinary full bath.
      - Affusions.
      - Sitz bath.
      - Foot do.
      - Cold pack.
      - Compresses.
    - Hot—
      - Tepid bath.
      - Warm do.
      - Hot bath.
      - Do. foot bath.
      - Do. sitz do.
      - Do. pack.
  - B. Medicated..
    - Sea bathing.
    - Saline bath.
    - Acid do.
    - Alkaline bath.
    - Sulphurous bath.
    - Mustard do.
- II. Vapour.
  - Simple.
  - Medicated.
- III. Air ... Turkish bath.

Cold baths Cold baths have a tonic and bracing influence on

the body, and are of great use in abstracting heat from the body in cases of fever. When not carefully used, they may be productive of great harm, especially in children and in persons in whom the circulation is feeble. There are several ways of employing cold baths to reduce temperature. One is that of cold affusion, when a patient is put into a tub and cold water is poured over him. Another and safer way is to place the patient in a general bath with a temperature about 90° F. and to gradually reduce the temperature by the addition of cold water or lumps of ice to 80°, 70° or even 60°. The patient is kept in this from 10 to 20 minutes according to his strength and the height of the temperature. It must be remembered that the temperature often continues to fall after removal from the bath, and care must be taken not to continue its use too long, or it may induce collapse.

Cold pack.

If a patient's temperature is excessively and continuously high, a cold pack may be ordered, if so, the patient's clothing is removed and he is covered with a large sheet. Mackintosh is placed quietly under him, a large basin of iced water and couple of sheets brought to the bedside, one sheet is dipped into the basin and wrung out and wrapped around patient both under and over and then only is the dry top sheet removed as no patient should ever be unnecessarily exposed. The pillow should be covered with a mackintosh and either a wet cloth wrung out of iced water, or an ice bag kept to the patient's head. The wet sheet may be kept cool by being sprinkled with iced water and changed

for a freshly wrung out sheet every half hour, precautions being taken that the surplus water runs off the mackintosh into vessels placed to receive it. The temperature should be taken in the patient's mouth or rectum about every twenty minutes, and nourishment in small quantities as ordered. The orders will probably be to remove the patient from cold pack when the temperature falls below 101° as the temperature usually falls a degree or so lower still after removal. To remove a patient from the cold pack, cover him over with a dry top sheet, remove the wet one and the mackintosh; he can then be carefully wiped dry. Finally cover him lightly with a blanket, when he will frequently fall into a quiet refreshing sleep. This treatment under the Medical officer's orders may, in persistent fever cases, be continued for several days with excellent results, but nurses must never attempt the treatment without special instructions.

Cold sponging. Cold sponging is a very useful means of lessening fever heat, particularly when the patient is weak, and the cold bath is considered inadvisable. Tepid water will also reduce temperature to some extent.

Cold sitz baths. Cold sitz baths should only be used for less than 5 minutes and should be followed by a brisk rubbing with a rough towel. It is useful as a tonic and in constipation.

Cold foot baths. Cold foot baths are used for the same purposes as the sitz bath. They should not be used in women during the menstrual period.

Cold com- Cold compresses may be applied to the neck,

head or other parts either by an ice bag or by means of folds of linen dipped in water and then placed over the part and covered with a piece of oiled silk. presses.

Tepid baths range from 70° F. to 85° F. Tepid baths.

Warm baths range from 85° F. to 97° F. Warm baths.

Warm water softens the skin and is of much use in many skin affections. By inducing perspiration it tends to lower temperature and also induces sleep.

These range from 97° to 110° F. If above the temperature of the body, they raise the temperature of the patient; they also produce sweating. A patient in a hot bath should always be carefully watched, as, if left in too long, weakness and fainting may be induced, but used for a short time, the hot water has a stimulating effect. Hot baths.

Hot foot bath is useful to relieve congestion and prevent inflammation in some cases. It is useful in restoring the menstrual flow when this has been stopped or is absent. In using a foot bath, sufficient water should be put in the bath to reach to near the knees. The efficacy is increased by the addition of some mustard. Hot foot bath.

Hot sitz baths act in the same way, but are more powerful. Hot sitz baths.

Hot blanket packs are useful in some cases of dropsy, and when the hot bath cannot be given. In using these, a blanket is wrung out of hot water and wrapped tightly round the patient, and another dry blanket thrown over him. He can be left in this for 30 minutes or more and then the hot wet blanket can be slipped away and the patient care- Hot blanket packs.

fully wiped without more exposure to the air than is absolutely necessary.

An acid bath. An acid bath is made by mixing 8 ounces of dilute nitro-hydrochloric acid with a gallon of water at 98° F. It can also be used as a foot bath, or a linen or flannel compress can be dipped in the solution and applied over the region of the liver or abdomen and a piece of oiled silk put outside. This may be worn for 24 hours at a time and renewed daily.

Alkaline bath. Alkaline bath is made by adding one drachm of carbonate of soda to each gallon of water used.

Mustard bath. Mustard bath is made by adding from half to one drachm of mustard to each gallon of water. This bath is a powerful stimulant.

Dry heat. Dry heat is frequently ordered to raise the temperature of certain parts of the body, as, to the feet and legs and to the armpits, in collapse or in cholera. It is also efficacious in relieving certain forms of pain. It may be applied by means of tins or bottles filled with hot water, by dry heated bricks, or pieces of metal wrapped up in flannel or cloth, and by bags of heated sand, bran, &c. The tins and bottles containing the hot water should not be placed in contact with the skin unless the temperature can readily be borne by the hand, and, even then, the feelings of the patient are the best guide as to the necessity of interposing a piece of flannel or cloth, which may be single or double. Special care must be taken not to burn the skin of patients who have lost sensation from spinal injury, or other cause, by inattention to this point.

The hot air or lamp bath. The hot air or lamp bath is a means of applying dry heat to the surface of the body generally. The temperature may be raised from 100° to 170° according to the requirements of the case. The patient may be covered while in bed by a bamboo frame about 5 feet long, 18 inches high, and 2 feet wide, having a piece of wood at one end hollowed out to fit the neck. All his clothes must be removed, and the frame covered over with cumblies or blankets sufficient to retain the heated air. A small covered vessel, containing burning charcoal, may then be placed inside the frame near the foot, or the air may be heated by means of a lamp, placed under a trumpet-shaped tube communicating with the interior of the frame. In the Turkish bath, the air of a room is heated, and the person breathes the heated air.

CHAPTER III.

SURGICAL NURSING.

MANAGEMENT OF SURGICAL CASES—ACCIDENTAL WOUNDS AND THEIR TREATMENT—STRAPPING—ANTISEPTIC DRESSING—THE PREPARATION OF PATIENTS PREVIOUS TO OPERATION—ATTENDANCE AT OPERATIONS—MANAGEMENT AFTER OPERATION—BANDAGING—STARCHED AND OTHER STIFF BANDAGES—SPLINTS AND CRUTCHES.

MANAGEMENT OF SURGICAL CASES.

Meaning of the word "surgery"

Hobbyn's Dictionary gives the meaning of the word Surgery as "That branch of medicine which treats diseases by the application of the hand alone, the employment of instruments or the use of tropical remedies" and Miss Florence Nightingale is credited with saying, "It is much easier to find a good surgical nurse than a good medical nurse," but though a medical nurse requires perhaps more thoughtfulness and greater powers of observation still all the qualities of a good nurse are required in surgical nursing, especially in these modern days when the internal organs such as the lungs, liver, kidneys, &c., are so frequently operated on and medical cases develop into surgical ones by the

Qualities required in a surgical nurse.

progress of diseases. One difference between surgical and medical wards is that all medical cases are suffering from some form of functional or organic disease, while surgical cases may be constitutionally healthy and merely injured by bruises, cuts or broken bones. A surgical nurse requires to be more active and business-like and will have to guard against acquiring an abrupt manner and perhaps a tendency to roughness and noisiness, for, in a large Hospital one notices the patients are rougher and noisier in the surgical wards and of a different type from the generality of medical patients.

Duties of a surgical nurse.

A surgical nurse must understand thoroughly the application of dressings, antiseptics, strapping, bandaging, splints; the duties connected with attendance at operations, the care of instruments, and surgical appliances, hemorrhage and how to arrest it, and be prepared for accidents and emergencies.

Dressings.

There is a great variety in dressings, from the dry dressing, put on a clean cut, to the complicated antiseptic dressing for a liver abscess case, or after the extirpation of a cancerous growth from some vital part. Dressings are *dry*, *wet*, *greasy* or *antiseptic* but in all great cleanliness is needed.

Nurse's duties when a case is to be dressed.

When a nurse has to dress a case, she first gets everything required ready close to the patient; such as mackintosh to keep the bed and clothing dry, hot and cold water with some disinfecting solution for cleansing the wound, a *chatty* for soiled dressings, an irrigating can and dressing dish with or

without tubing, according to the amount of water used for irrigating, lint, cotton wool, tow or jute, strapping if required, also bandages, forceps, probe, and scissors. She sees that her patient is not exposed to any draught and in private cases, places screens around the bed both for decency and in consideration of the patient's feelings. She then washes her hands carefully with soap and water, rinsing them in a disinfecting lotion. She places the mackintosh under the injured part, removes the soiled dressing gently, taking particular care not to drag it off if it sticks to any part, and also to use her forceps and not her fingers in removing the dressings, otherwise she may infect herself with a troublesome disease or suffer from blood poisoning from her carelessness. She sees that the lotion used is of the correct strength and temperature. She then cleanses the wound thoroughly before applying the fresh dressing. If the raw surface is extensive as in burns or scalds, the whole should not be exposed at once but one part uncovered, cleansed and dressed at a time.

Soiled dressings.

The air of the ward must be kept as pure as possible, soiled dressing should be removed at once and placed in a tub, disinfecting powder shaken over them, and then kept covered until removed from the Hospital premises, buried or burnt. The kind of dressings to be used will vary according to the orders of the Surgeon and will be applied as directed.

Wet, dry and

Wet dressings are kept moist by oiled silk or paper, something larger than the dressing, being

placed over them. Dry dressing sometimes consists of nothing but a double fold of lint with, may be, boracic or iodoform powder dusted on the surface, with strips of strapping applied to keep it in position. Wet dressings are generally changed twice daily; oily or greasy dressings may be changed once daily, but dry dressings are frequently left on from four to seven days or longer. If a wound is doing well, there will be no constitutional disturbance, but if hemorrhage sets in, the patient's temperature falls rapidly and collapse ensues, or, if the pus from a wound cannot escape and is absorbed by the blood vessels, the temperature may rise accompanied by rigor (shivering fits). These things are avoided by careful dressing. Gangrene, erysipelas, and tetanus have to be guarded against by keeping the air pure and dry and by the use of antiseptics which resist or prevent putrefactive changes. greasy dressings.

Antiseptic dressings are of tow, cotton wool, lint, gauze, &c., impregnated with carbolic acid, eucalyptol, perchloride of mercury, boracic acid, iodoform, or other antiseptic substances. They ought to be kept in tin-lined air-tight boxes, and never left lying about the wards. They should be cut to proper size and prepared for each dressing as wanted. This applies to all dressings. Antiseptic dressings.

Ointment should be kept in porcelain pots with lids on, and a porcelain slab and spatula kept for spreading it. Ointments.

Strapping or gutta-percha tissue easily spoil and become useless in a short time in this climate so that only small quantities should be got at a time. Strapping and gutta-percha tissue.

Lotions.

Lotions of concentrated strength should be kept in jars labelled and stoppered carefully.

ACCIDENTAL WOUNDS AND THEIR TREATMENT.

Wounds.

Wounds are divided into—*incised,* such as are made by sharp cutting instruments; *contused,* when caused by bruising; *lacerated,* when much torn, as in machinery accidents; *punctured,* produced by stabbing instruments, lances, &c.; and *gunshot,* which are caused by the missiles discharged from fire-arms, or by the splinters they scatter in their flight.

Points to be observed in the treatment of wounds.

The following points should be observed in their treatment:—1st, *to arrest bleeding*; 2nd, *to remove all dirt,* such as gravel, mud, &c.; 3rd, *to bring the edges of the wound accurately together* by strips of plaster, fastened first at one side of the wound and then at the other, and then drawing the free ends across the wound, so as to close it, taking care to leave a small interval between the strips of plaster to allow the free discharge of matter. If the edges of the wound are too extensive to be held by plaster, they should be stitched. In incised and lacerated wounds, if not severe, they may be cleaned at once, as the cold water will probably stop the bleeding. If very large, the edges may be held together by "serrefines;" of course, strips of plaster should also be used.

How to stitch a wound.

A wound is stitched thus:—Insert a threaded needle about a quarter of an inch from the cut edge, and pass it obliquely through the skin till its

point is seen in the wound, then enter the point on the *under-surface* of the skin at the opposite lip of the wound, *and directly opposite where the first puncture* was made, and bring it to the surface at a similar distance from the edge; then tie the thread with a double-reef-knot and cut off the ends, *taking care not to tie the knot so tightly as to pucker the skin.*

Wounds of the face.

All wounds of the face should be brought together as soon as possible, to prevent disfigurement, and stitches should be used if necessary. Waxed silk or horse-hair may be employed. Scalp wounds are never free from the danger of erysipelas.

STRAPPING.

How to use strapping.

Strips of plaster (generally soap plaster) are sometimes employed for strapping ulcers of the leg. They should be cut in the length of the web of plaster, to measure 1½ inches in width, and at least 6 inches longer than the circumference of the limb at the point of application; each strip should be made to overlap the one preceding it to the extent of one-third of its width. The strips should be applied from below upwards. A roller bandage is then applied over all.

ANTISEPTIC DRESSING.

The main cause of the irritation of wounds is now known to be exceedingly minute living bodies or germs, which are constantly floating about in the air, and so readily find their way into wounds open to the air.

Object of antiseptic dressing.

The object of the antiseptic treatment is to destroy these bodies, and its success depends upon the completeness with which not only those inhabiting the air in the vicinity of the patient are destroyed, but also those which exist on the dresser's hands, the dressings, and in point of fact everything which may be brought in contact with the wound, and which may give rise to the infection of the wound. This we endeavour to accomplish by the use of chemical substances called antiseptics, the chief of which are carbolic acid and corrosive sublimate.

An antiseptic dressing, which, as a rule, will be applied by the Medical officer himself, requires to be changed as soon as the least trace of discharge reaches its margins.

The operation theatre is a necessary appendage to all surgical wards and a nurse must know how to prepare her patients for operations, attend at operations, and manage cases after operation. She should always have every thing ready in case of accidents being brought in suddenly, by night or day, so that there will be no confusion or delay, which is very annoying to the Surgeon and may be fatal to the patient.

THE PREPARATION OF PATIENTS PREVIOUS TO OPERATION.

The care and management of patients who are to

When patients come to hospital for an operation, their cases may or may not be urgent; if not urgent, the patient is kept under observation and specially treated to fit him for undergoing the operation. The nurse should be particularly kind to these

patients to prevent as much as possible the natural depression of spirits and ideas of absconding which so frequently arise in their minds. She need not allude to the operation when speaking to him, but, if this be unavoidable, a hopeful cheery tone should be adopted in doing so. In these cases specimens of urine must be collected for examination and when the nurse receives orders to prepare the patient, she must begin the previous evening by administering an enema of castor-oil or soap and water. Castor-oil first clears the bowels and then quiets their action for a few days, which is an advantage. If possible the patient gets a warm bath to cleanse his skin, or if not well enough for the exertion he is washed in bed; if the part to be operated on is hairy, it must be shaved; if the woman or man has long hair it must be plaited and put out of the way as much as possible especially in operations about the face and neck. The patient should have no solid food for about six hours before the operation nor food of any kind for three hours, so that if nausea is created by the chloroform or other anæsthetic, he will not vomit, as this might prove extremely dangerous. The vomited matter might get into the trachea and suffocate the patient, as even a small piece of orange has been known to do.

be operated in.

Preparing patients for operation.

The bladder must also be emptied (by the catheter, if necessary) as, while under an anæsthetic, the muscles become limp and the sphincters (the anus and urethra) relax, and the contents, (if any), of the lower bowel and bladder may escape which is a very undesirable occurrence on an operation table.

Clothing of patients for operation.

The clothing must be light and warm and on no account be tight at any part, especially at the neck or waist; otherwise the breathing may be interfered with. The part to be operated on, after being thoroughly washed with soap and water, must be further cleansed with an antiseptic, and a piece of lint or gauze soaked in an antiseptic lotion placed over the part.

Temperature to be taken before operation.

Bed for abdominal cases.

Cradle required.

Mackintosh and drawsheet under site of operation.

The temperature of the patient should be registered before operation. Before taking her patient into the operation theatre, the nurse should prepare a fresh bed. If it is an abdominal case, two pillows should be placed in the centre of the bed to rest the patient's knees on so as to relax the abdominal muscles. Two blankets should be folded double, one to be placed over the chest and upper part of the body, and the other for the legs and lower part of the body, so that the dressing over the wound can be easily examined for oozing, without uncovering the other parts. A cradle is sometimes required for keeping the clothing off the part operated on, or for supporting ice bags. Small pads and pillows are likely to be required and also sand bags. A mackintosh and drawsheet must not alone be placed across the bed as usual for all helpless cases, but also one under the site of the operation to catch discharge if there is any oozing.

Cleanliness of nurse and ward attendants.

It goes without saying that the nurse and ward attendants must be scrupulously clean in their clothing and persons (a toty should never be allowed within a ward). At special abdominal section cases in St. Thomas' Hospital, the special nurses are

directed to have a warm bath, wash their hair and put on clothes fresh from the laundress before taking charge.

There should be a good supply of bandages and dressings, also a chatty at the bedside; bottles for hot water, a feeding cup, a double chart and report forms ready. If the patient is nervous, he will probably be put under the influence of chloroform before being taken to the operation theatre.

ATTENDANCE AT OPERATIONS.

The theatre should always be ready at a few moments notice. The instruments and dressings are usually kept under lock and key by the Assistant Surgeons. Operating theatre.

The lotions, sponges, wipers, mops, towels, Doctor's aprons, mackintoshs, basins, blankets, pillows, chatties, irrigators, are under the nurse's care. The care and preparation of sponges before and after use is an important of the nurse's work. Articles under care of the nurse.

The operating table in the centre ought to have a folded blanket, mackintosh, coloured quilt, draw mackintosh and sheet and pillow (covered with mackintosh with a white pillow case over), and the small stand for chloroform at the head. Shallow boxes filled with sawdust, available for catching any overflow of discharge or blood, and chatties should be placed underneath. Operating table.

There should be a long table with shallow porcelain pans filled with antiseptic lotion for the instruments, basins with lotion for wipers, and also to wash the Surgeon's fingers, empty basins to hold Surgeon's table.

the sponges and everything likely to be required by the Surgeon during the operation.

Nurse's table.

This table should be close to the side occupied by the Surgeon; the nurse should have a special table for hot water, irrigating cans and dressing dishes, bottles of lotion plainly labelled to denote name and strength of contents, sponges, cotton wool, towels, one or two basins, feeding cup, glass syringe, safety pins, needles, cotton and tape bandages, graduated porringer to measure contents of abscess, &c., splints ready padded, bottles for hot water, and she should be ready to do such things as may be required of her.

Taps, sink and basins. Washing of sponges.

There should be swing basins, and taps for washing hands, a sink to wash sponges in, and three basins which should stand in the sink for the purpose: one with cold water to first rinse the bloody sponges (this water should be boiled and filtered before use) a basin with carbolic lotion 1 in 500, tepid to next wash the sponges, and another of the same strength and temperature to give the final washing before the sponge is handed back to the Surgeon.

Carrying of clean and dirty sponges.

These sponges should be received from the operating table, in a small basin, carried to the sink, washed and returned in a clean basin, not in the hands of students or nurses, as their hands at the moment may not be surgically clean and may thus counteract all the antiseptic precautions taken by the Surgeon.

Behaviour of attendants at operations.

Each attendant at an operation should attend to his or her own special duty and not interfere in that of the others. There should be no talking or noise. The operating Surgeon will

detail who is to give chloroform, who is to hand him the instruments and who to assist in the use of them.

The senior nurse will place an attendant to hold the patient at the foot of table, will see to the strength and temperature of the antiseptic lotions and the cleansing of the sponges. Senior nurse's duties.

If a junior nurse works with her, she will see that she does her work properly, especially in regard to cleaning sponges, &c. She should try to anticipate the wants of the Surgeon so that there may be no confusion or delay. She will, if required, assist at the dressing and help to lift the patient from the table to the stretcher. Junior nurse.

NOTE.—*To prepare and clean sponges.* They should first be shaken clear of all sand, then washed in water to remove all dirt, and then placed in water diluted with hydrochloric acid and let remain there till all effervescence has ceased and all minute shells and calcareous sand has been dissolved. For this purpose it may be necessary to renew the acid several times. After this process they should be much softer.

They should then be well washed in plain water to remove any superfluous acid.

If necessary, they may be bleached by being washed repeatedly in a solution of binoxalate of potash (60 grains to a pint of tepid water).

After being rinsed in hot water, they should be stored in wide-mouthed bottles or jars containing a five per cent. solution (1 in 20) of pure carbolic acid.

Operation. During an operation, they should go straight from the wound into water, in order that the blood may be rinsed out of them before they are washed in carbolic acid solution and used again.

After an operation, they should be at once well soaked in warm (not hot) water, then for a day or so in a solution of common salt. This should remove the last trace of blood from

them, after which they should be well rinsed in warm water and placed in the carbolic solution as before.

Sponges, if neglected, retain blood and fluids very freely and become sources of danger to any patient with whom they are used. The greatest care should be taken in carrying out the above directions and sponges should never be placed in the store bottles or jars or used except when absolutely clean and pure.

Nurses in small hospitals to take charge of instruments.

In a small hospital the nurse or matron will have charge of the instruments and dressings required in the operating theatre and must know all about their preparation for every kind of operation.

MANAGEMENT AFTER OPERATION.

Putting the patient to bed after an operation.

Treatment of operation case.

The patient is lifted carefully on to a stretcher, particular care being taken of the part operated on, the lifting and carrying to be done smoothly and without delay. He is placed on the prepared bed, his head kept low, and sufficient clothing used to keep him warm, especially over his extremities, as they are likely to be cold. The nurse should watch for any sign of bleeding or collapse: if patient's temperature is low, his skin cold and perspiring and his pulse weak, he should have additional blankets—brandy, if ordered, hot bottles to feet, and the perspiration gently wiped off; also friction to his hands and feet; if there is any retching, a little ice may be given him to suck or a mustard plaster put to pit of stomach for 15 minutes; if restless, take care that the dressings are not displaced. Temperature, pulse and respiration should be taken and registered, if there is any marked change for the worse, the Medical officer should be sent for and his orders carried out quickly; but in no case should there

be any fuss and it is all the better if the patient can be left in perfect quiet for the first few hours; he should not be roused but allowed to return to consciousness gradually; as a rule, there will be no necessity to give him food for several hours except he is extremely weak when a nutritive enema will probably be ordered. A patient may not be able to pass urine for some time after chloroform, but the nurse's business in that case will only be to report it. The nurse's written report on the case will continue until the Medical officer considers it no longer necessary.

Patient not to be roused.

Written report.

BANDAGING.

Bandaging is an art which should be taught those who seek instruction in all the duties which can properly come within the province of an experienced nurse to perform. It should be remembered that *teaching* an art of any kind is insufficient to make the learner proficient; *practice* also is requisite, and simple as the operation of applying a bandage, when done by an experienced hand, may appear, much practice will be required before a beginner will succeed to the satisfaction either of himself or of the patient.

Much trouble would be saved, however, by attention to two or three points at first, which it is well, at once, to indicate:—(1) the bandage must be of the proper width and shape; (2) it should be made of suitable material; (3) it should be firmly rolled; (4) it must be applied evenly and smoothly, and with the same degree of firmness throughout.

Bandages are used for three purposes—(1) to

Purposes.

afford support to a part; (2) to restrain movement; (3) to retain splints, dressings, or other appliances.

Varieties. First, *rollers*, which are the most common form of bandage for general purposes. They are mostly made of the stoutest unbleached long-cloth procurable which should be immersed in water and dried before it is torn in bandages. Sometimes flannel, cambric, or muslin is used instead, and sometimes they are made of an elastic material, and then pass under the name of *elastic bandages*. A cheap, useful and cool material for bandages is the coarse open wove fabric called "Calcutta cloth." The common roller varies in length and width according to the part to which it is to be applied. *Arm rollers* should be 2⅛ inches in width and not less than 6 yards in length. *Leg rollers* should not be wider than 2¼ inches and not less than 9 yards in length. *Rib or chest rollers* must be 4½ inches wide and about 12 yards long. These dimensions may be varied in practice, but it will be found that when a roller is too wide, it cannot be made to lie evenly on the limb, and there will be trouble in giving it the *reverse*. It is better to have a roller rather narrow than a little too wide.

The selvedges ought always to be stripped off, and the bandage ought as far as possible to be made of one continuous piece without joinings.

Rolling bandages. A number of bandages of all kinds should be kept ready for use. In order to apply them with precision, they must be previously rolled up *tightly* and evenly, taking care to remove all loose threads from the sides. Unless this be done well, it will be

impossible to apply them satisfactorily. Machines are sometimes used for rolling bandages, but it can be done nearly as well by hand, though not quite so quickly. To make a roller, first fold in a few inches of one end as tightly as possible and begin to turn it on the knee. After a few turns have been made and the roller commenced in this manner, get an assistant to hold the bandage with moderate tightness about 3 or 4 feet from the operator, and now the roller must be taken between the forefingers and thumbs of both hands, the roll itself being turned downwards. The thumbs are then made to slip forwards alternately, while the roll is simultaneously turned backwards by the other hand, and so on until the roller is completed. For the fingers, &c., narrower bandages are required, which are rolled by a different method. The assistant is dispensed with, and the roller is held between the finger and thumb of the left hand endwise, while the thumb and forefinger of the right hand keep the bandage tight, guiding it on the roll and turning the latter alternately.

A double-headed bandage. A double-headed bandage is rolled from both ends to about the middle, or two single-headed rollers may be sewn together at the free ends.

Compound bandages. Compound bandages are formed by uniting one roller to another or to something else at an angle.

Handkerchief bandages. Handkerchief bandages and *long-cloth* bandages of *irregular shape* are sometimes preferred.

Four and six-tailed bandages. Four and six-tailed bandages are made by stripping both ends of a piece of bandage cloth to with-

in a few inches of the centre, into as many strips or tails as required.

Many-tailed bandages.

Many-tailed bandages consist of a number of separate lengths of bandage cloth or flannel placed one upon the other, so that each length shall overlap the preceding one by about a third of its width, and all are then sewn to another length placed vertically across the centre of the others. The lengths must be cut off sufficiently long to overlap each other, after encircling the part for which the bandage is intended.

Mode of application.

First secure the end by making the first turn to lie upon it so as to get a fixed point from which to start, then carry it over the surface flatly, without creases or undue pressure on either edge. Each succeeding turn of the roller ought to overlap the preceding one by about a third, and as soon as the part is well covered, any surplus roller should be cut off, lest in using up the remainder, as is sometimes done inadvertently, the patient be made hot and uncomfortable. When the part is of an uniform calibre and the roller lies evenly upon it, the bandage is called a *circular bandage.* When the surface is uneven, the roller will have a tendency to quit the proper line, and, either it must be applied in the form of a *figure* of 8, or its direction must be altered by a movement which is termed the "reverse." The *reverse* is given by placing the forefinger of the left hand on the last turn of the bandage to prevent it from slipping or becoming loose, while the roller, held about four or five inches from that point, is slackened and folded over upon

itself, in the direction of the next turn, so as to bring the under surface uppermost. It is then drawn tight by a slight jerk, and a fresh start obtained by which the roller can be carried on evenly in the direction required.

In bandaging a limb, *the reverse* has often to be given with each turn of the roller, in order to accommodate it to the altered calibre of the limb, and in that case the reverse should be made at the same point in the turns, so that the bandage may present a regular and uniform appearance. Care must be taken to avoid making the reverses over a hard surface where the shaft of a bone is superficial, or over a bony prominence.

The bandage must be applied with equal pressure on all the parts which it envelopes, as well as evenly. Each turn must be no firmer than the preceding one; the upper and lower edges of each turn must lie equally close to the surface, and there ought to be no chinks or intervals between the several turns. Inattention to these points will give rise to unequal pressure and constriction; and, if the latter be so great as to stop the circulation in a limb, mortification would probably result. When a limb is bandaged soon after an injury, it is liable to become swollen, and dangerous constriction is apt to occur; hence recent injuries should always be bound somewhat loosely; and if the extremities become blue, cold, or numb, no time should be lost in removing and re-applying the bandage. The bandaged limb should therefore be examined every two hours.

BANDAGES FOR THE HEAD AND NECK.

Simple head bandage.

1. Take an arm roller and make two or three turns round the head, beginning above the ear and carrying the roller horizontally over the occiput or back of the head and forehead; then pin at the temple and conduct it, if required, over any part of the vertex, or top of the head, finishing off by a turn under the chin and pinning at the temple as before.

FIG. 1.

FIG. 2.

Four-tailed bandage.

2. A yard of long-cloth six or eight inches wide is slit up the middle at both ends to within three inches of the centre. It then consists of a central portion, which is to be applied to the vertex as required, and four equal tails; the two hinder ones are brought forward and fastened under the chin,

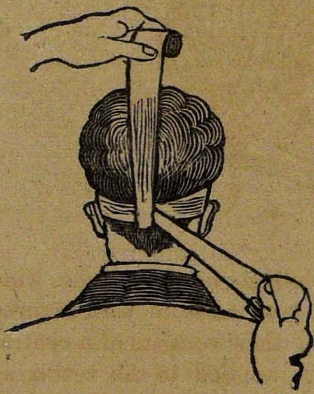
and the two front ones are carried back and tied below the occiput, or else crossed there and secured under the chin also.

3. Six-tailed bandage is of the same length as the preceding, and about three inches broader; it is split in the same way into three tails at each end, and, in applying it, the two middle tails are fastened under the chin, the two posterior ones over the forehead, and the two anterior ones below the occiput. **Six-tailed bandage.**

FIG. 3.

4. A long double-headed roller two inches wide must be taken by the operator, who, placing himself behind the patient, after the head has been shaved, or the hair, if the head is not shaved, should be combed and properly adjusted, applies the centre of the bandage low on the forehead and brings the rollers horizontally one on each side close above the ears to the occiput. The two heads of **The capeline.**

FIG. 4.



the roller are then to be simultaneously transferred from one hand to the other respectively. The bandage which is uppermost is now to be pressed firmly against the head, while the lower one is turned at a right angle over the former and carried directly over the crown of the head to the root of the nose; meanwhile the other bandage is being brought on in its proper direction around the head until it crosses the vertex bandage. The two heads of the roller again change hands, the horizontal one is pressed firmly against the head, while the vertical one is carried back over the crown in an oblique direction slightly overlapping the first vertex band. The two heads meet again at the occiput, change hands, and the same process is continued until the whole of the vertex is covered, then the two bandages are carried once horizontally round the head and the ends fastened off.

FIG. 5.

The nodose bandage.

5. The nodose bandage is employed to arrest hemorrhage by compression. A double-headed bandage and compress are taken, and to illustrate the mode of application suppose the temporal artery has been wounded. The compress being first placed on the temple, the central portion of the bandage is applied upon the opposite temple, and the two

bandages carried horizontally round the head until they meet at the site of the compress. They are now twisted on one another to form a half-knot, and so turned that one head may be conducted over the vertex, transversely, and round under the chin back to the knot, while the other head is carried in the opposite direction to the same point. They are now again twisted to form another knot, and then carried horizontally round the head until they again meet at the same point, and so on until as many turns and twists have been made as are necessary. To be effective as a compressor, the twists must be made immediately over the graduated compress. Finally, the bandage should be fastened on the opposite temple.

FIG. 6.

6. A yard and a half of long-cloth, three inches wide, with the ends slit down the middle to within three inches of the centre. In the latter, a hole or slit should be made about an inch from one border, just large enough to receive the chin. In applying the bandage, the chin is first placed in the central slit with the narrower side in front. The two upper tails are carried back and fastened at the nape, while the lower ones are tied on the top of the head. If all the ends are then secured together, the bandage cannot slip. Four-tailed chin bandage.

Bandage for neck wounds.

7. If the patient is refractory, or adjustment by pillows fails, the head may be kept in position by the following means:—First apply a broad bandage immediately below the armpits, round the chest, then a double-headed roller is carried from under the chin, crossed over the vertex, and down equally on both sides to be firmly fastened to the chest bandage. A few horizontal turns round the head may then be made to fix the vertical portion.

FIG. 7.

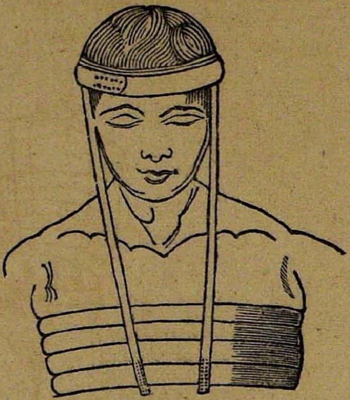


FIG. 8.

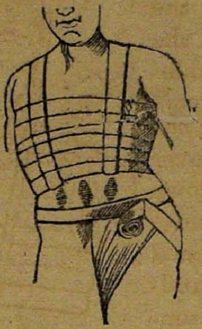
Bandage for wry neck.

8. Bandage for wry neck is applied on the same principle as the preceding, but it is carried from the temple on the unaffected side to the back of the axilla, and thence brought forwards and fastened to the rib bandage. The axilla must be protected by a pad or piece of leather plaster.

BANDAGES FOR THE TRUNK.

9. Take a broad roller and apply it rather tightly round the chest, beginning from below, and gradually ascending. Each turn should overlap Rib bandage.

FIG. 9.



the preceding by about a third, and the bandage should be retained in position by a separate strip carried round the neck, both ends being stitched to the circular turns in front.

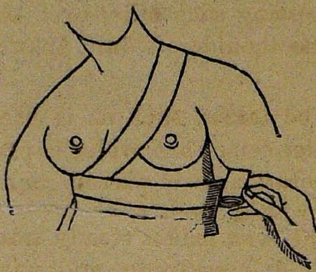
10. Bandages for the breast— Bandages for the breast.

(*a*) *A large handkerchief*, folded in the form of a cravat, is passed under the affected organ, and tied on the opposite shoulder.

(*b*) *Four-tailed bandage* is more efficient. Take a yard and a half of long-cloth, a foot wide, and split the ends to within six inches of the centre; the central portion being applied over the organ, the lower tails are tied round the body, and the upper ones round the neck on the opposite side.

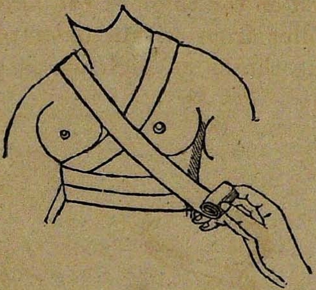
(*c*) *Single oblique.* Take a "leg-bandage" and fix the end by a turn round the body, then carry it obliquely upwards under the margin of the affected organ to the opposite shoulder, and back to the starting point. Next make a turn round the body, and then carry it again over the shoulder, a little more over the breast than before, and so on, alternately round the body and over the opposite shoulder, until the purpose is attained.

FIG. 10.



(*d*) *Double oblique.* A long bandage will be necessary, as both breasts have now to be included. Begin as before, carrying the first oblique turn over the shoulder, and the next turn round the body to the back, thence conduct the bandage over the other shoulder and bring it obliquely downwards over the inferior margin of the second breast. Then again round the body, and, alternately ascending over one shoulder and descending over the other, as before, until the purpose is fulfilled; join-

FIG. 11.



ing two rollers together if necessary. A double-headed roller, begun at the spine and carried forwards under the breasts and over the opposite shoulders, the bands crossing each other over the sternum and between the shoulders would answer the purpose still better.

Bandage for abdomen after tapping.

11. A binder may be taken, such as is used after delivery, but a roller somewhat wider is preferable. Before the operation, it is passed round the patient's body and crossed, each of the ends is then given to an assistant, who makes steady traction all the time the fluid is escaping, and until the opening made by the trocar has been closed in the usual manner. The ends are then folded round the body and fastened.

Figure of 8 for the groin.

12. Figure of 8 for the groin may be *single* for one groin or *double* for both. The single one (*spica* as it is sometimes called) is applied by fixing the end on the thigh of the affected side, carrying the roller from within outwards, then from between the thighs as high up as possible, outwards over

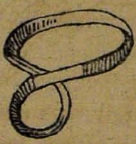


FIG. 12.

FIG. 13.

the groin and pelvis to the opposite side; thence to the outside of the thigh and back between the

legs to complete the figure of 8, making as many turns as are needed.

FIG. 14.

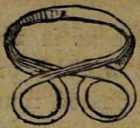
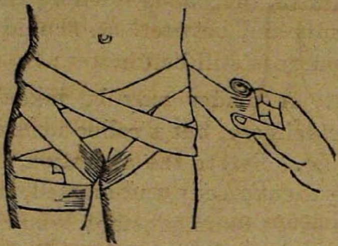


FIG. 15.



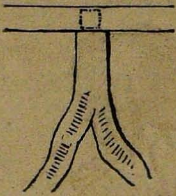
The *double spica* or figure of 8 is begun precisely like the single one. First a turn round the thigh, then upwards and outwards over the groin and pelvis and round to the opposite side, then down over the other groin to the inside of the corresponding thigh and back to its outer side, then ascend obliquely upwards across the pubes to the opposite side of the pelvis, and so on, the roller being carried around the body just below the brim of the pelvis and round each thigh alternately.

Hip bandage.

13. Useful in retaining applications and affording support in hip-joint disease. It is applied like the preceding alternately around the pelvis and thigh, but the roller should always be carried from without inwards round the thigh and back over the hip-joint. It may be retained in position by pinning each turn to the preceding pelvic turn, and then reversed and carried round the body, back to the inside of the thigh, and so on, as before. Each turn should overlap the preceding over the hip by about half.

14. The simplest form is made by tying a single turn of a roller behind the waist, carrying the bandage under the perinæum and fastening it to the waist in front. T Bandage for the perinæum.

FIG. 16.



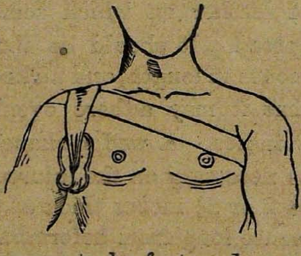
A better plan is to take two strips of broad bandage, one long enough to go round the waist and fasten in front, and the other to reach from the centre of the back under the perinæum and up to the waist in front. The end of the latter must be sewn to the centre of the former, all across, to make it secure. The perinæal band may be left entire, or split into two tails, which can be fastened separately over each groin.

A catheter may be retained in the female bladder by a piece of narrow tape, 18 inches long, tied by its centre to the end of the instrument; each end of the tape is then fastened to the corresponding tail of the perinæal band, on a level with the urethra. Bandage for female catheter.

BANDAGE FOR THE UPPER EXTREMITY.

15. Fold a common handkerchief to the breadth of about three inches and adjust the centre under the armpit, so as to cover and retain the dressing or poultice for which it is applied. Then bring the ends over the same shoulder, cross them and carry them on to the opposite axilla, where they are to be fastened. Simple axillary bandage.

FIG. 17.



Compound axillary bandage.

16. Compound axillary bandage is useful, in cases of emergency, for drawing back the shoulders, and is applied in the following manner:—Two handkerchiefs, folded respectively to the breadth of about three inches, are required. Take one of these, pass it under the armpit, and tie the ends firmly in a double knot over the same shoulder, so as to form a loose ring. The other is then carried under the other armpit and tied in a single knot over the shoulder blade. One end is to be looped through the ring formed by the first bandage, and the two ends are then tied in a double knot, sufficient tension being employed to draw back the shoulders to the requisite extent.

FIG. 18.

Axillary figure of 8.

17. Useful in fracture of the collar bone. First protect the axilla from chafing by applying a piece of leather on which some lead plaster has been spread. It should be about 3 inches wide by 6 inches in length, and nicked rather deeply all round that it may adhere evenly without falling into wrinkles. A wedge-shaped axillary pad may also be necessary on the injured side. The pad should be 2 or 2½ inches thick at the base, and from 5 or 6 inches long from before backwards. The thickest part or base of the wedge should be placed upper-

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most close up to the axilla. With a long arm roller take a turn round the uninjured shoulder and axilla, fixing the end of the roller over the clavicle, and carry the bandage obliquely backwards to the opposite axilla, thence conduct it forwards, securing the pad in the axilla of the injured side, and obliquely over the shoulder, to the back of the opposite armpit, to complete the figure of 8. The shoulders must now be braced well backwards until the ends of the bone meet properly, while the roller is continued, as before, and four or five turns are taken around each shoulder. The end is then to be fastened, and the bandage should also be sewn at the point where the turns cross one another between the shoulder blades.

Elbow sling.

18. Useful, in addition to the figure of 8, to fix the elbow to the side and support it. Place the arm obliquely across the chest with the hand pointing to the opposite shoulder, take a turn with a leg bandage round the hand and wrist to fix the end, and make two or three turns round the chest and lower part of the arm near the elbow to fix it to the side; then carry the roller under the elbow, making a small slit in the

FIG. 19.

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bandage for the point of the elbow to rest in, and obliquely across the chest over the opposite shoulder, finally stitching the end to the circular turns.

Slings for the arm, hand and elbow.

19. A large square handkerchief, folded cornerwise, is the best thing for the purpose. For the hand a simple cravat is sufficient; the sling must be short so as to keep the hand raised and pointed towards the opposite shoulder. For the arm it may be long enough to allow the arm to lie horizontally. When the elbow is included, the longest margin of the folded handkerchief should be in front and the point towards the elbow. The ends are tied around the neck so as to keep the arm almost horizontal, and the point is then turned forwards, in closing the elbow, and pinned in front.

FIG. 20.

A handy and cool sling may be made as follows: tie together the ends of a piece of leg bandage, seven feet long, so as to form a loop. Place the middle of the loop on the patient's neck so that one end of the loop shall hang down on front of the chest on the right, the other end on the left. The arm to be supported is then placed in these loop ends, one of which will lie near the elbow, the other at the wrist.

Arm bandages.

20. Take a narrow roller, place the end across the palm, and carry the roller outwards over the root of the thumb around the wrist and back on the palm, fixing the end, and completing a figure of 8 by passing on the roller around the roots of the fingers, with the thumb left protruding; repeat the figure until the hand and wrist are covered, then conduct the roller by a few circular turns up the forearm, until it reaches a point where the limb is larger and the bandage requires to be "reversed." This manœuvre may then be repeated as often as necessary until the elbow is reached, where the bandage may be finished off by the figure of 8, or it may be carried on to the upper arm.

FIG. 21.

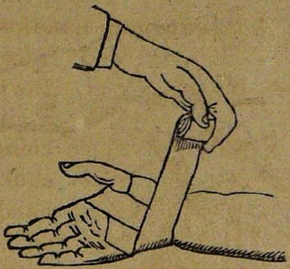
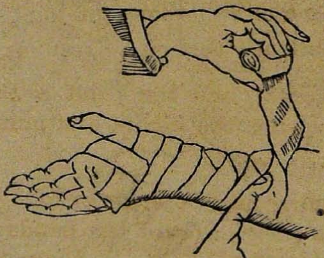


FIG. 22.

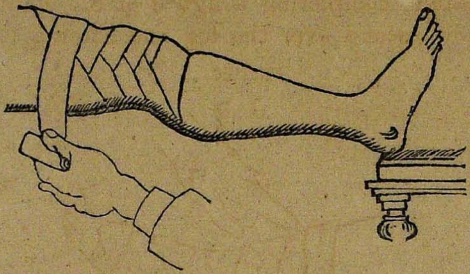


BANDAGE FOR THE LOWER EXTREMITY.

Knee bandage.

21. The figure of 8 is the best form of bandage for this joint. Take a leg bandage and begin by

FIG. 23.

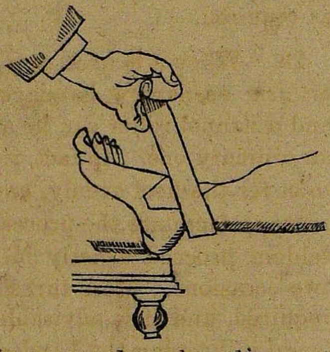


making the first turn or two *above* the knee, to fix the end, from within outwards, pass on the roller under the knee and complete the figure by a turn below it. The intervening space may then be covered, making "reverses" when necessary, and finishing off by a turn or two above the joint.

Leg bandage.

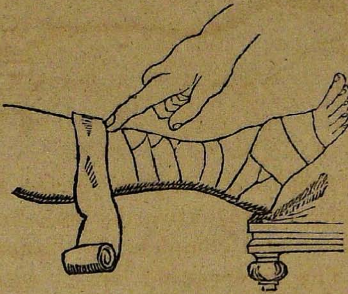
22. Place the patient's heel on a "rest" or edge of a chair, with his ankle joint fixed; and, sitting immediately opposite the foot, apply the bandage in the following manner:—Secure the end on the inner margin of the foot, by a turn of the roller around the ankle from within outwards; carry it well down over the instep and make the next

FIG. 24.



turn close to the roots of the toes; the third turn should overlap the preceding on the instep of the foot, and the fourth should ascend round the ankle, and back over the foot as high up as possible, completing a figure of 8. The roller will now ascend over the leg and after a turn or

FIG. 25.



two, on reaching the calf, the "reverses" will become necessary to make it lie evenly. The bandage may be finished off by two or three circular turns below the knee, or carried on over the knee as required.

23. When it is necessary, also, to cover the heel, an arm or narrow bandage should be preferred, and a flannel roller can be applied more easily than an ordinary one. In fact, it requires much practice to cover the heel evenly, and no description would serve to facilitate the process, as an operator would seldom proceed exactly in the same way on any two occasions. More turns and "reverses" will be required, and it is advisable to add a few stitches to aid in keeping the bandage in place. Heel bandage.

Stump bandage.

24. Nurses will seldom be called upon to dress a stump, after amputation, until the process of cicatrization is pretty well advanced. Lint and other dressings are laid over the end of the limb and secured by a few turns of a roller. To bandage a stump, first take a couple of turns, a short distance up the limb, to fix the end of the roller, then secure it with the thumb and carry the roller, at right angles, over the end of the stump to a corresponding point on the opposite side, then secure a fold by means of the fingers and reflect the roller over the stump to the starting point; again secure it at each of the opposite points until the stump is covered, and then fix all the folds by a couple of circular turns. If preferred, a circular turn may be made after each longitudinal one to secure them separately.

FIG. 26.

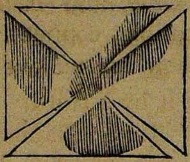
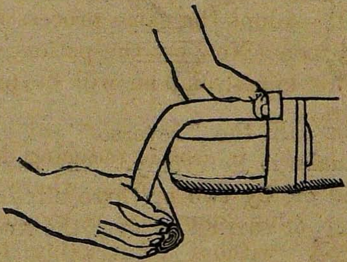


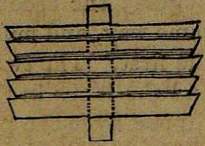
FIG. 27.



Many-tailed bandages.

Many-tailed bandages are sometimes used for the limbs instead of rollers. Each individual tail should be made so as to encircle the limb and overlap, at the ends by about an inch, and the one below it by a third.

FIG. 28.



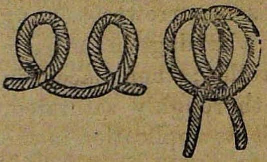
Lithotomy bandage.

25. Take a flannel or elastic leg-bandage, three yards long, and make a single figure of 8 turn round the ankle, as in beginning a leg-bandage; then place the corresponding hand on the outside of the foot with the fingers of the patient applied to the sole, carry the roller over the hand and foot and wrist alternately, by a few turns, and the position will be secured. Adopt the same process for the other hand and foot. Now lay the patient on his back, separate his knees, and he will be prepared for the operation.

The "clove hitch."

26. The "clove hitch" is used in reducing dislocations, &c., where a firm purchase is required without constricting the limb. It may be made in several ways, but all are difficult to describe; it consists of two loops, formed by twisting the bandage in the same direction for both, and then placed together so that the ends of the bandage may come loose to one another between the loops.

FIG. 29.



Hold the bandage in the left hand with the thumb on the point at which the loops are required,

then with the right make the first loop, bringing the bandage up between the first and second fingers; the second loop is made in precisely the same way, and must then be passed over and *behind* the first. The two ends are now taken in one hand, and the loops in the other, and in this manner it is slipped over the part for which it is required. The ends are then alternately drawn out until the loops closely embrace the limb without undue pressure. The part to which the clove hitch is about to be applied should be previously bandaged, to protect the skin from injury or abrasion.

The clove hitch may also be made by taking two turns of a roller round the limb. Hold the bandage at a sufficient distance from the end in the left hand, make the first turn above it, and the second below it, then pass on the roller *under* the last turn (between it and the limb), and bring the two ends together.

STARCHED AND OTHER STIFF BANDAGES.

Starch bandage.

1. Make a thick paste of some arrowroot or any other kind of starch; moisten a bandage in the paste and roll it up as an ordinary roller; then place it in the vessel of paste to get thoroughly saturated, while the limb is prepared for its application in the following way:—

First, wash the limb with soap and water, dry it completely, and then lay a piece of broad tape flatly along the surface on the whole length of the limb, then protect the skin completely by a narrow flannel bandage, including the heel if the leg be the

limb to be dealt with. Now apply the starched bandage in the same way as an ordinary roller, covering the surface with two layers of bandage at least, and strengthening any part, which may require extra support, by short strips of lint or bandage also moistened in the paste. Some paste may now be rubbed over the bandage to ensure its having a sufficient degree of stiffness. Care must be taken that, during the drying process, which, in the rainy season, may take some hours, the limb is kept in a proper position and is not allowed to stick to the bed clothes. After drying, the bandage is sometimes found to be loose: it may then be slit up by means of a proper instrument, such as Liston's pliers, and reapplied by the addition of a common roller. The tape first placed on the limb will be found useful in raising the bandage during the slitting up process.

Dextrine.

2. Dextrine, white of egg and flour, powdered gum and precipited chalk may also be used for the preparation of stiff bandages.

Plaster of Paris (*gypsum*) bandage or splint.

3. This is usually made as follows:—Dust dry, powdered, gypsum into the meshes of a coarse muslin bandage, and roll it up ready for use. Envelope the limb in a flannel roller or layer of cotton wool; soak the muslin roller, previously prepared, in water, and apply it over the flannel as an ordinary roller; then smear it over with a thick paste of gypsum and water, making the outside perfectly smooth. Keep the limb in proper position while the plaster sets, which will take only a few minutes.

Short strips of bandage are sometimes preferred to a roller in applying this bandage.

Canton flannel has been recommended by Dr. J. L. Little as the best material to use on account of its thickness. Two thicknesses are measured and cut to cover, exactly, the leg and foot, and trimmed so that the edges shall not overlap. The plaster is mixed with an equal quantity of warm water and a little salt added to it. By stirring, it becomes as consistent as thick cream, and then the flannel is to be thoroughly soaked in it. The saturated flannel is then to be smoothed out by the fingers upon a flat surface. It should be applied to the limb from behind forwards so that the edges may come on the anterior of the limb. A roller is applied to secure it in position, and, until the plaster has "set," the limb held in the way in which it is intended to retain it.

Gutta-percha splints.

4. First, cut out of a piece of long-cloth the shape of the part to which the splint is to be applied. Taking this as a pattern cut a piece of gutta-percha of corresponding dimensions. Have some boiling water ready in a pan, and when all is ready, dip the piece of gutta-percha entirely in the water for a few seconds, until it has become pliable. Take it out quickly, lay the pattern cloth upon it, to protect the skin, and apply it on the part; it must then be rapidly moulded to it by pressure, and a roller bound over it, before it hardens, that it may adapt itself closely to the surface.

Sole leather or mill board

5. Sole leather or mill board may also be used in a similar way.

SPLINTS.

A splint is employed by a Surgeon when he finds it desirable to restrain the movement of a joint, or of a limb, or any part of it. Splints are most commonly used in the case of fracture of a bone, to keep, as far as possible, the broken ends in their proper position. They are also sometimes made use of to obviate the tendency to contraction of a joint, or to straighten it after it has become stiff, to prevent a joint from being moved after dislocation, or in the case of disease; and they are useful, in certain cases, to relieve pain where it is increased by involuntary movement of a limb.

Splints are made of wood, tin, japanned iron, and certain materials capable of being moulded to a part, as gutta-percha and pasteboard already referred to. In cases of emergency, many other things may be made use of temporarily to supply the need of the Surgeon until he has time to obtain a more suitable apparatus. Thus a quire or so of paper, cardboard, thick leather softened in water, the cover of a book, the wooden sheath of a sword or dagger, a bundle of broom grass, or any flat piece of wood may be speedily adapted to the requirements of the case.

VARIETIES. Splints are either straight or angular, flat or concave, simple or hinged. The appliance may also be complex in its arrangement.

The form of splint in most general use is the *common lined splint,* which consists of a thin board glued to a piece of leather or canvas. The wood is then cut lengthwise, about three parts through

its thickness, into a number of parallel strips, which admit of the splint being made concave or used as a flat splint according to the side which is placed next the limb. The splints are usually made in "sets" of various lengths so as to fit the particular limb of an adult or a child to which it is to be applied.

Angular splints.

Angular splints may be cut out of a single piece of wood, or two pieces may be joined at an angle and hollowed out. When not available, which is often the case in this country, a tolerable angular splint may be extemporised by fastening together by small tacks two common lined splints.

Splints fitted with joints or screws are usually made of metal.

SPLINTS FOR THE UPPER EXTREMITY.

Splints for fracture of the arm near the shoulder.

In some cases a leather or gutta-percha cap is used to envelope the shoulder and arm, the forearm being bandaged and supported in a sling. As the object of the splint is to restrain the movement of the shoulder-joint as far as possible, the cap should extend from the middle of the collar bone down nearly to the elbow-joint. It is made by first cutting out and fitting a calico shape. The leather or gutta-percha is then cut of the same size and pattern, dipped in boiling water for a few moments, and then moulded. When quite hard, it should be pierced by a number of holes, and then secured in position by a light bandage, tapes, or webbing.

In other cases two common lined splints are ap-

plied, a long one reaching from the shoulder to the elbow on the outside of the limb, and a short one on the inside between the axilla and bend of the elbow, taking care that no undue pressure is made on either of these points when the arm is bent. The splints are then secured in position by tapes or webbing. The arm is then fixed to the side by a turn or two of a roller, and the wrist supported in a sling leaving the elbow free.

Splints for fracture of the arm near the centre.

The arm should first be bandaged from the hand upwards, then in some cases it is sufficient to encircle the arm by three or four "common lined splints" according to its size. One on the outside and one on the inside as in the preceding case, and additional ones in front and behind so as nearly to encircle the limb. They are secured by tapes, &c., as usual.

A better plan seems to be to apply a rectangular splint from the axilla to the palm, and two or three short straight splints around the arm, outside, inside, and in front, as required, securing them by tapes, and the angular splint by a bandage.

Splints for fracture of the arm near the elbow.

An angular splint must always be employed in such a case, and the arm should be bent so that if the joint become stiff, the hand may be carried to the mouth. An iron, or perforated zinc splint jointed at the elbow, may be preferred to the ordinary wooden one.

Fracture of the olecranon process.

A straight splint, well padded and long enough to reach from the middle of the arm to the middle of the forearm, will be required, and must be applied over the flexure of the elbow-joint in order to

keep the limb nearly straight. The pad should be thicker in the centre than at the ends to allow of the slight degree of flexion of the joint. In applying this splint, the ends should first be secured by a strip of plaster and then a bandage applied. Sometimes a small pad is placed at the back of the arm just above the elbow.

Splints for excision of the elbow-joint.

A common straight splint, or a slightly bent splint, may be taken in the first instance, the object being to fix and rest the whole limb. It should be fixed by a few turns of a roller at each end leaving the elbow free, and the splint should be well padded, and the part in contact with the elbow protected by oiled silk to prevent it from being soiled. The dressing can then be slipped in and out when they require to be changed without disturbing the arm. After a time a jointed splint is more convenient. Mason's splint is very useful, as it admits of all the motions of the joint being performed, is applicable to either the right or left limb, and the dressings can be changed without removing the splint.

Splints for fracture of the forearm.

Two straight splints will be required rather broader than the arm and long enough to reach from the elbow to the palm of the hand. Besides the ordinary pads a small long central pad is sometimes used to keep the bones apart. The splints should first be secured by a couple of tapes tied around them, one near the elbow and one near the wrist, and then they are enveloped by a circular bandage. The arm is to be carried in a sling.

Colles' fracture.

Two straight splints may be applied, the hand being bent well towards the ulnar side, or a "pistol

splint" may be preferred. In either case an arm bandage and pads will be called for in setting the arm.

Splints for fracture of the hand.

If a single metacarpal bone is broken, a narrow strip of wood extending from the point of the finger to above the wrist may be sufficient to secure the ends of the broken bone in position. It should be fastened by a narrow strip or two of plaster as well as by a "finger" bandage. If more than one bone is broken, a "hand splint," of wood or gutta-percha, should be used, and care taken to pad the palm of the hand well to keep it arched.

Fractures of the finger bones.

Fractures of the finger bones are treated on the same principle, the splint being padded so as to adapt it to the arched form of the phalanges.

Splints for fracture of the thigh bone.

A fracture cot ought to be got ready for the patient before the bone is "set;" that is to say, a a cot consisting of a double frame work, the upper one so arranged as to be capable of being lifted a foot or two above the under one, so that the under bedding may be changed and the discharges of the patient easily removed without disturbing him in the least degree. The tape or canvas attached to the upper frame should have a hole about 12 inches in diameter in the centre, through which the patient, when properly adjusted, is able to evacuate the bowels when the upper frame is raised, without soiling the bedding, into a receptacle placed beneath. *Liston's long splint* is generally employed. To apply it, a perineal band and a couple of long leg bandages will be needed; and the splint must be well padded. The lower end of the splint has

two deep notches, and a hole two or three inches above them. The hole is for the reception of the outer ankle bone, and the notches for the bandage to be passed through in securing the splint firmly to the foot. At the upper end are two smaller holes through which the perineal band is passed. The foot is first to be carefully and evenly bandaged; sometimes a flannel roller is put on before the ordinary bandage, but that is hardly necessary in this country. Then the splint, well padded, is adjusted to the outer side of the leg and thigh, so that the hole at its lower end shall come immediately over the ankle bone. The bandage is then to be carried on from the foot around the splint and through the deep notches, so that the splint may be fastened quite securely to the foot and not liable to be moved by any downward pressure during extension of the limb. The roller is then carried on until it reaches about half-way up the thigh. Extension is made by an assistant drawing down the foot as far as possible, while the perineal band is secured to the upper end of the splint. It may be adjusted previously, and the two ends passed through the holes, and then they are put on the stretch and securely fastened during extension. A few turns of a roller are now passed around the body including the upper end of the splint, and it should be seen that the pad is adjusted so as to preclude it from chafing the side of the patient.

In certain cases a short well padded splint is also applied on the front of the thigh, to keep the upper

fragment of bone in place, or the double-inclined plane may be used in lieu of splints.

In other cases, *Nathan Smith's rod splint* or *McIntyre's splint* may be considered preferable.

A single-inclined plane is sometimes used to keep the limb raised at a considerable angle, to relax the muscles attached to the upper fragment and so allow the two pieces of the bone to come as nearly together as possible. Sometimes a straight splint is put on at the back of the knee-joint extending from the middle of the thigh to the middle of the calf. There are also other ways of treating fracture of this bone.

Fracture of the knee cap.

When both bones are broken, the leg is usually put up with two angular side splints. The angle is near the lower end, at the malleolus, and the part beyond it is called the foot piece. The splints must be well padded, one is applied on each side of the leg, and they are secured above and below the fracture by pieces of tape firmly fastened around them or by a broad strip of plaster. Sometimes a roller is applied over all. The limb is then either laid on the bed between a couple of sand bags or suspended in a cradle or a Salter's swing.

Splints for fracture of the leg bones.

Sometimes a straight iron back splint, with a foot piece, is preferred; it must be well padded, and side splints may also be used to give lateral support if required. Attention must be paid to the support of the leg on the back splint by the arrangement of the pads, so as to take off the greater part of the pressure from the heel, which might otherwise

cause considerable pain or even become inflamed and ulcerate.

When only one bone is fractured, the leg may be put up in a single splint and laid on the outer side, the knee being bent.

In *compound fractures,* a McIntyre, or the simple back splint will be required. In these cases, care must be taken to leave the wound uncovered so as to admit of its being examined and dressed as often as necessary, without disturbing the limb.

Small firm pads are sometimes called for to make pressure on certain points, so as to bring the broken ends into their proper position.

Splints for fracture about the ankle.

Pott's fracture, in which there is a partial dislocation outwards with a fracture of the small bone of the leg near the ankle, may be treated by one or two side splints as described before, or by Dupuytren's splint, or by a short splint resembling Liston's. *Dupuytren's splint* is applied to the inner side of the leg, and the pad is made considerably thicker where it fits into the hollow above the malleolus. It is then fastened by several turns of a roller below the knee and by strips of plaster or figure of 8 bandage around the foot and ankle. This serves to bend the foot inwards over the thick portion of the pad, and to throw out the upper end of the lower fragment of the bone in contact with the upper one. The leg may be placed either on its inner or outer side. The short.splint (Liston's pattern) is also applied on the inner side of the leg, and secured above by a few turns of a roller, below, the figure of 8 bandage passes through the notches.

CRUTCHES.

After a time, a patient, who has been confined to bed for some weeks for any injury of the lower extremity, will require to support himself on crutches when he begins to move about. If the patient is unable to use the limb at all, it should be supported in a sling passing under the foot and around the neck. When the Surgeon orders crutches for a patient, it is the nurse's duty to see that proper ones are given to him, and her attention should be given to the following points :—

The length of the crutches should be only just sufficient to enable the patient standing on the sound leg to raise the injured one off the ground. The cross-bar for the armpit should be well padded to prevent injurious pressure on the nerves of the arm. The end should be capped by a piece of leather or cloth to prevent it from slipping, when the patient would certainly come to the ground. Patients being awkward when first attempting to move about on crutches, these points are more essential *in the first instance* than when a patient is accustomed to the use of crutches, and is comparatively independent and able to take care of himself.

PART II.

CHAPTER I.

ACCIDENTS AND EMERGENCIES.

HÆMORRHAGE AND HOW TO ARREST IT—DROWNING—ARTIFICIAL RESPIRATION—FOREIGN BODIES IN THE EYE OR EAR—BURNS AND SCALDS—BITES OF ANIMALS AND SNAKES—SPRAIN; SHOCK—INSENSIBILITY—POISONS AND THEIR ANTIDOTES.

HÆMORRHAGE.

Severe hæmorrhage speedily ends in death if not checked, more especially if it is arterial, because here the blood is driven from the heart with greater force, and it flows more rapidly than that which issues from the veins. Besides, the coats of the arteries do not collapse when divided as readily as do those of the veins, so that their ends remain open. In dealing with any case of hæmorrhage one must be able to decide whether it comes from an artery, a vein, or a capillary.

Arterial hæmorrhage.

Arterial hæmorrhage is diagnosed by the blood issuing with a jet or spurt; it is of a bright crimson colour, and each spurt corresponds with the pulse beat; the size of the blood stream indicates tolerably accurately the size of the artery that has been

wounded, or the size of the wound in the arterial tube. The natural process by which nature arrests the bleeding is as follows:—

1st. Certain elastic and muscular fibres of which the tube of the artery is composed cause it to *contract* when divided. How nature arrests it.

2nd. By a similar elasticity the vessel *retracts* into its sheath; for arteries are contained in sheaths just as underground telegraph wires are inclosed in iron tubes.

3rd. The blood on the surface *coagulates* owing to the fibrin it contains, and, in small arteries, when they are *completely divided* (so that the divided ends can both contract and retract) this *coagulum* shuts up their ends completely.

4th. The blood in the artery itself *coagulates up to the nearest branch*; the base of the clot, which is pyramidal in shape, being at the wound in the artery, and the apex towards the branch.

5th. The blood also exudes, as it clots, a substance already mentioned, called febrin, around and between the cut orifices, which finally becomes "organized," and thus seals up the orifice completely; and lastly, owing to loss of blood, the patient becomes faint and the heart's action thus materially lessened.

When certain of the larger arteries are divided death is almost instantaneous. *Punctured wounds*, or those which only *partially* divide an artery, are the more dangerous, *for the artery cannot contract*, neither can it *retract*, and so remains patent and

gaping. When an artery is torn across it contracts instantly, and there is often but little bleeding.

Venous hæmorrhage.

Venous bleeding is known by the blood being dark in colour, and "welling" up from the wound—*not* spurting, as do arteries—by its slower flow, and by the ease with which it is stanched (unless in case of very large and deep-seated veins) by raising the limb, applying cold water pressure with a handkerchief, and adjusting a pad and bandage.

Capillary hæmorrhage.

Capillary bleeding is merely general exudation, or "weeping," from a wound, and is of little moment. Cold, lint, pressure, position, and the application of plaster easily restrain it.

The formation of clots.

It is stated above that the blood *clots* when an artery or vein is wounded, and that it forms a conical plug inside the artery, which, if all goes well, becomes "organized" that is, converted into a substance like the coat of the artery, which it in this manner permanently closes, or occludes.

It has also been shown that another clot is formed outside the artery on the surface of the wound, and if a nurse is ever obliged to attend to a person who has been severely wounded, and *in whom bleeding has ceased*, she should never try to wash away this clot in order to clean the wound, *especially if the person has fainted.*

TO ARREST HÆMORRHAGE.

Elevation of the part.

If it is from a part that can be elevated such as a limb, and follows an operation, elevation of the part should be tried when the bleeding is slight.

Pressure.

If severe, *pressure* is to be used; when the bleeding

is from a vein the pressure should be *below* the wound—*that is, on the side farthest from the body,* presuming the wound is on the arm or leg. *If in the neck*, or at the shoulder, it should be made *on both sides of the wound.* This is easily done with the fingers, next a pad of lint is to be placed over the wound, and secured in its place by plaster and bandage or the wound may be drawn together by plaster, and then dressed with lint and secured by bandage. If the wound is arterial, the pressure should be made between the trunk and the wound, *i.e., on the side of the wound nearest to the body,* for the blood flows *from* the heart to the extremities in this case, whereas, in wounds of the veins the reverse holds good. This pressure not sufficing—and it very rarely does when an artery is severed, the tourniquet should be applied, the pad being placed over the main trunk of the artery, between the wound and the body, and the buckle tightened on the side of the limb opposite. Then, by twisting the lever, the requisite degree of pressure can be obtained to a nicety. The tourniquet should be so applied that the lever exactly corresponds to the pad, but, of course, at the opposite side of the limb from the buckle. There is also a "field-tourniquet," the band of which merely requires to be fixed on the retaining pins, and the requisite tightness produced by twisting this with a piece of stick, presuming the simple buckling of it does not suffice. A temporary tourniquet can be made with an ordinary pocket-handkerchief, folded corner-wise, and in the centre of which a cork, bit of stick, or round stone is folded, over even a large knot made on the

Application of tourniquet.

handkerchief itself. This is placed around the limb above the wound, with the stone, &c., over the main trunk of the artery, and the ends tied at the opposite aspect of the limb. A piece of stick, a pencil, or any such thing, is then placed beneath the handkerchief, and twisted until sufficient pressure is made. If no stick is at hand, any strong person can produce enough pressure by means of the knuckles placed under the handkerchief which should be tied as tight as possible, and then twisting the hand so as to tighten the handkerchief sufficiently. Another, and by far the readiest, way of checking temporarily the bleeding from an artery is by means of the elastic bandage of Esmarch. It is of two kinds of a plain, flat, India-rubber band, about a yard and a half long and three inches wide, made of black, smooth India-rubber; and a plain, India-rubber tube having two hooks attached to the ends. This is applied by simply twisting the tube round and round the limb, at the same time stretching the bandage or tube to its utmost tension, and, in the case of the tube, hooking its ends together, or, if the bandage is used, tucking the ends under the last turn. As any one can use either of them without a knowledge of the lie of the blood-vessels, it is best to employ them when obtainable. A bleeding vessel may also be secured by *acupressure*. This is done by means of a long pin, like that with which ladies fasten their bonnets. This is pushed through the muscle close by the side of the artery; it is then made to bridge the vessel over, and is pushed through the muscle again on the oppisite side, much as one pins of a flower-stem

Esmarch elastic bandage.

Acupressure.

in the coat. Even large arteries can be thus dealt with. But nurses, as a rule, are not sufficiently versed in Anatomy to be able to apply this method, which indeed is seldom practicable.

DROWNING.

Restoration of apparently drowned, 1st method.

To restore persons apparently drowned, let the head hang down for two or three seconds, *never more*, to allow any water to escape from the mouth; then lay the body down, with a folded coat for a pillow; draw the tongue forwards, and keep it so; *clean out the mouth and throat*, take off the clothes, wipe the face and body dry with warm towel, give an enema of brandy and coffee, put hot water bottles to the feet and insides of the thighs; if breathing has not ceased, put ammonia to the nostrils, and use friction to the limbs and trunk; flick the chest and neck with a wet towel; you may also tickle the nose and back of the throat. The body should be kept warm and friction never relaxed until restoration occurs; leeches may be applied to the front of the chest and breast-bone, or blood taken from the jugular vein; but this is for a Surgeon to do. Electricity has been recommended—one pole being passed up and down the sides of the neck, and the other up and down the sides of the chest. These means failing, we should resort without delay to artificial respiration.

ARTIFICIAL RESPIRATION.

Dr. Marshall Hall's method.

Dr. Marshall Hall directs the body to be laid on the ground, with the arms straight by the side. The body is then turned gently over on to the front

of the chest, from which position it is again brought back on the side, and slightly over towards the back. By this means, as the body is turned over on its face, the chest is compressed, and the air in the lungs forced out, and as it is brought back again, the chest is expanded, and the fresh air drawn in. This alternate compression and expansion should be executed from twelve to sixteen times per minute, a short pause being made each time the chest is filled with air.

The following is Dr. Howard's method of resuscitating the drowned. The great advantage it possesses is, that during the process the operator is certain that he is actually pumping air in and out of the lungs, for the epiglottis is kept well open all the time. Other advantages are that the process can be carried out by one person and that to begin with the lungs and stomach are cleared as far as possible from water.

i. Instantly turn the patient's face downwards with a large firm roll of clothing under stomach and chest. Place one of his forearms under his forehead so as to keep his mouth off the ground. Press with all your weight two or three times for four or five seconds each time, upon the patient's back, so that the water is pressed out of the lungs and stomach, and flows freely out of the mouth. Then :

ii. Quickly turn the patient's face upwards with roll of clothing under back, just below shoulder blades and *make the head*

hang back as low as possible. Place patient's hands above his head. Kneel with patient's hips between your knees and fix your elbows firmly against your hips. Now—grasping lower part of patient's naked chest squeeze his two sides together, pressing *gradually* forward with all your weight for about three seconds until your mouth is nearly over the mouth of patient: then with a push, *suddenly* jerk yourself back. Rest about three seconds;—then begin again repeating these bellows-blowing movements with perfect regularity so that foul air may be pressed out, and pure air be drawn into the lungs, about eight or ten times a minute, *for at least one hour or until the patient breathes naturally.*

The above directions should be used on the spot, the first instant the patient is taken from the water. Prevent crowding round the patient. Be careful not to interrupt the first short natural breaths. If they be long apart, carefully continue between them the bellows-blowing movements as before. After the breathing is regular, let the patient be rubbed dry, wrapt in warm blankets and take a little hot brandy-and-water occasionally and then be left to rest and sleep.

FOREIGN BODIES IN THE EYE AND EAR.

1st. Eye to be kept shut.

Foreign bodies in the eye are very troublesome; never try to "rub" the substance out, as by so doing more pain is caused and inflammation may

be engendered. Unless the substance is lime or mortar, the eye ought to be kept quite still and closed. The reason of this is that the *lachrymal gland*, whose function is to secrete the tears, is placed at the outer corner of the upper eyelid on its under surface. The tears are constantly flowing over the eye, and are carried away by a small tube running from the inner corner of the lower eyelid to the nose, and whose orifice is quite evident on the little projection on the edge of the lower eyelid. Pain and various feelings cause the lachrymal gland to pour out an increased quantity of tears, which overflow down the cheek. Now the irritation caused by a speck of dust, &c., will excite the flow of tears, and, by keeping the eye shut, the tears generally wash the particle down on the cheek, or at least, close to the edge of the eyelid, where it can be seen and removed.

2nd. Upper lid to be pulled over lower

If this does not succeed, catch the upper eyelid by the lashes at its middle, and pull it well down over the lower lid. At the same time tell the patient to roll the eyes about so that the lower eyelashes may sweep the inner surface of the upper lid, thus acting as a brush.

3rd. Nostril to be closed and nose blown.

If this is not successful, *still with the upper lid pulled well down, close the nostril at the opposite side to the painful eye* with the thumb or forefinger and *forcibly blow the nose.*

4th. Horse hair passed over the globe of the eye.

If the piece still lodges, make a loop of horse hair and pass it up over the globe of the eye, this may succeed. These means failing, turn the upper lid inside out by catching its lashes at the middle and turning the lid upwards over a probe, knitting-

needle, crochet hook, or similar article; the probe, &c., being held horizontally half way from the margin of the eyelid, and made to press gently down on the lid, the speck can thus be usually seen and removed with a moistened camel's hair pencil, feather, or soft handkerchief. Sometimes, however, the substance will have been impelled with such force that it becomes imbedded in the tissues of the eye, and a Surgeon only can remove it. 5th. Upper lid to be inverted over probe and speck removed.

Mortar or lime in the eye is both painful and dangerous, and must be removed speedily or sight will be lost. If seen *at once*, the eye should be well washed with *a tepid solution of vinegar and water.* One dessert-spoonful of vinegar to a wine-glassful of water, the lid being of course everted as described above, *and every particle of lime and mortar removed.* A drop of castor-oil, olive oil, or sweet oil may then be dropped into the eye, and great are their soothing powers. Mortar or lime in the eye.

Foreign bodies in the ear, unless they are quite close to the opening, had better not be meddled with by a nurse. If the substance has passed out of sight, any unskilled attempt at its extraction might rupture the drum of the ear, and cause fatal inflammation or loss of hearing. The best thing to do is to put a few drops of oil in the ear, and subsequently gently syringe it with a small nozzled instrument, taking care to direct the stream of water up against the roof of the ear. Oil dropped in and ear gently syringed.

BURNS AND SCALDS.

Burns and Scalds are the result of intense heat. They are of various degrees of severity; from mere Various degrees.

redness of the surface to complete destruction of a limb. In healing, if extensive, the scars they leave are prone to great contraction, often rendering the part deformed and useless. These injuries are more fatal to children than to adults; they are more dangerous on the head and trunk than on the extremities, and a slight burn over a large extent of the body is of greater moment than a very severe burn of smaller extent. You should throw a blanket or heavy *woollen* fabric or garment, around any one whose clothes you may see on fire; cotton is too easily ignited. The clothes should be removed with the utmost gentleness, being cut where they adhere, and any blisters may be punctured. The parts should then be wrapped in soft rags steeped in "carron oil"—equal parts of lime-water and linseed oil—rolled in cotton wool, and covered with gutta-percha tissue, securing the whole by bandaging. If none of these are at hand, starch of flour may be thickly dusted over the burn, or another good thing is a mixture of castor-oil and collodion. If no cotton wool is at hand, roll the person in a blanket or rug, taking care it does not touch the broken skin. If the patient has collapsed, a little brandy containing fifteen or twenty drops of laudanum if the patient is an adult may be given; the latter should, however, be administered sparingly, and omitted if the collapse seems severe. All burns of a severe character are dangerous, and the above merely indicates what should be done till a medical man can attend.

Treatment when clothes catch fire.

Dressings.

Collapse.

BITES OF ANIMALS AND SNAKES.

Ligatures and sucking.

Bites of venomous animals should be attended to immediately. A ligature should be placed around

the limb between the bitten place and the body, to prevent the poison from entering the circulation, and the wound should then be sucked—*care being taken by the person who does so that he has no abrasion or crack on the lips.* The wound should then be bathed with warm water and bleeding encouraged, the surface should next be dried, and strong nitric acid, or a piece of iron at black heat, or a vesuvian, or a piece of ordinary caustic then applied to all parts of the wound. The nitric acid and hot iron are best. Cheer up the patient and keep him from chills, and destroy the animal, except it be a dog, when it should be chained up for observation as to whether it is really mad or not. The directions for the treatment of snake-bite adopted in India is, 1st, if on a limb, ligature tightly above the bitten part so as to stop all circulation; Esmarch's tube, if at hand, is also valuable, and should be applied at its utmost tension. Also give forty drops of laudanum, *or less, according to age*; 2nd, inject hypodermically a solution of permanganate of potash of the strength of five grains to fifty drops of water. The injection should be made at the site of the wound and well kneaded into the surrounding parts; 3rd, open a vein below the wound so as to blanch the limb beneath the bitten part; 4th, cut through the bitten part and apply powdered permanganate of potash when the wound is dry; it may be previously lightly cauterized with iron at black heat; 5th, give stimulants,—ammonia, ether, brandy, &c.; 6th, keep the patient quiet, and repeat opium, if necessary, after some hours.

Washing and cauterising.

Snake-bite.

SPRAIN; SHOCK.

Sprain.

Sprain by this is meant the partial rupture of ligaments, by a violent wrench of the joint injured. It is attended by severe pain, faintness, swelling, and discoloration, with subsequent weakness and stiffness of the part. Sprains of the knee, shoulder, and large joints are not devoid of danger. *The patient should have absolute rest.* If the knee, it is essential to put a well-padded back-splint to the leg, reaching from hip to heel. If seen early, iced compressor should be applied and keep on continuously for a few days.

Meaning of "sprain." Their treatment.

If seen after the swelling has become marked, hot fomentations should be used; and when the pain has subsided, a stimulating liniment may be rubbed in morning and night.

Shock.

Shock by this is meant the constitutional depression which follows severe injury, and is observed in various degrees in different persons, depending considerably on the patient's temperament, physical and general state of health. Its manifestations are feebleness of pulse; slow, sighing, laboured breathing; clammy cold sweats; blanching of the face, lips, and surface; faintness, sense of sinking, and general collapse. Shock may not come on for some considerable time after the receipt of an injury, and depends much on the constitution of the patient and the nature of the injury. It is best treated by rest, and perfect quiet; and by administering beef-tea, warm milk, with eggs, brandy and cordials, or wine as it is often accom-

Symptoms.

Treatment.

panied by intense thirst, crushed ice to such may be grateful, to the patient.

INSENSIBILITY.

By this term is meant loss of consciousness—and it may result from (*a*) *injuries to the brain*, concussion or compression, with or without the skull being fractured; (*b*) *affections of the brain*, viz., apoplexy, epilepsy, tumours, &c.; (*c*) *poisoning*, such as opium, belladonna, Indian hemp, &c.; (*d*) *alcoholic poisoning*; (*e*) *uræmia*, the result of kidney disease; or (*f*) *it may accompany hæmorrhage*, shock, &c. It is no easy matter for a novice to determine the cause of insensibility *and one should always treat such cases as of grave moment, even though there be a strong suspicion that the case be merely one of intoxication;* for though the person may smell of drink it may really be a case of apoplexy. It would be well always to bear in mind when observing patients in an insensible condition, always to note the hour, state of his dress, evidences of any struggle, general appearance, if wounded, &c., for it may be that foul play has been employed. A few simple hints as to what to do in such cases may be useful:—1st, turn the patient on his back with the head raised; 2nd, unfasten all tight clothing from the neck and body; 3rd, allow the air to play freely round him; 4th, have him seen by a medical man as soon as possible. If the case is one of epilepsy, the patient will probably be in violent spasms, frothing at the mouth, the face livid and drawn to one side, and the tongue bitten. His movements should be *gently* restrained,—*not for-*

Causes.

Points to be observed.

Epilepsy.

cibly, merely *contenting yourself* so as to prevent him from doing himself further injury. Something should be placed between the jaws to prevent him from biting the tongue, and a rolled-up coat may be placed under his head. When the fit is passed, he should be removed on a stretcher, and, if at hand, ammonia may be held to the nostrils. *In* Faintness. *simple faintness* the patient should be laid flat on the back *with the head level with the body*, so that the blood may more easily reach the brain. Bleedings, should, of course, be stayed by the means already stated. Ammonia, ether, wine, brandy or cordials should be given, but the patient's head should on no account be raised until reaction is well established.

Sunstroke Immediate treatment. *Sunstroke* may cause insensibility. The patient should be placed in the coolest and most shady place, cold water iced if possible should be poured over the head, trunk and limbs, ice to suck, and an iced water enema if the apparatus be at hand, then After treatment. medical aid called in at once. When recovery takes place, the person should be covered lightly, kept perfectly quiet, and given some gruel, weak beef-tea, milk, and sodawater, or plain water.

Fracture of the skull. Before passing from the subject of insensibility it may be well to mention that a person in this condition may have a fracture of the base of the skull, which is usually indicated *by a welling of blood or blood and water or a pale watery fluid from the ear*. Such cases are usually fatal.

Insensibility from When insensibility is due to alcoholic poisoning, the patient should be given an emetic, and hot

water bottles should be put to the feet, insides of the thighs, and in the armpits. The stomach-pump is also of service. alcoholic poisoning.

Choking is caused by food, bones, or other matters, lodging in the throat. Put two fingers into the throat and try to extract the substance; if it cannot be extracted, vomiting will have been excited by the fingers, and the foreign body may be thereby expelled. If neither the fingers nor the act of vomiting expel the offending substance, send *for a Surgeon, telling him to bring with him a probang and instruments to open the wind-pipe.* Choking.

POISONS.

For nursing purposes, poison may be divided into four classes:— Classes.

- i. Poisons that cause sleep (narcotic).
- ii. Poisons that cause delirium (deliriants).
- iii. Poisons that cause pain and inflammation of the alimentary canal (irritants).
- iv. Poisons that cause convulsions (convulsives).

The nurse's first duty in a case of suspected poisoning is to send for a medical man with a note of the symptoms. Meantime, if violent vomiting be not already present, she should administer an emetic of mustard—a table-spoonful in a couple of pints of warm water followed by more warm water if the patient can drink it. If there is great drowsiness, she should try to keep the patient awake by walking him up and down if possible. If the poison has been a mineral acid, she should administer Nurse's duty.

some alkali such as lime scraped from the wall, powdered chalk, magnesia, or bicarbonate of soda —in tea-spoonful doses—with copious draughts of warm water. If there is collapse, mustard should be applied to the epigastrium and calves of the legs; if vomiting does not occur, give twenty or thirty grains of sulphate of zinc in water, or a couple of table-spoonsful of ipecacuanha wine, or a similar quantity of mustard in a tumblerful of warm water, and supplement this by draughts of warm water. The mustard should be repeated at short intervals, if necessary. Tickling the throat with a feather also causes vomiting, so does greasy water, or salt and water. If no one is at hand to use the stomach-pump, and the person is conscious, make him swallow a portion of elastic India-rubber tubing, some two yards long and half an inch wide. Insert a funnel into the end hanging from the mouth and raise this well above the head, then pour a couple of pints of warm water down the funnel; then lower this free end, and the tube, acting as a syphon, will empty the stomach of its own accord. Repeat this several times till the stomach is well rinsed out. This is the immediate treatment for narcotic poisons, and usually nothing more is required. On no account permit the patient to sleep; cause him to be dragged and walked about by relays of assistants, *give strong coffee plentifully,* dash water over his neck and face, smack him on the feet and legs with a wet towel, or lightly with a switch, *and never mind people telling you it is cruel; if you let him sleep he is lost.* If other means fail, try artificial respiration.

Use of stomach-pump.

Prevention of sleep.

POISONS AND THEIR ANTIDOTES.

Acid, hydrochloric (spirit of salts) ...	Chalk, magnesia, and emollient drinks.
„ hydrocyanic (prussic acid) ...	Fresh air, artificial respiration, cold affusion. Freshly-prepared peroxide of iron, with an alkali.
„ nitric	Chalk, magnesia, emollient drinks, albumen.
Acid, sulphuric (vitriol) ...	Magnesia, which is better than chalk, and emollients.
Aconite	Emetics and stimulants, both external and internal.
Antimony	Tannic acid, catechu, vegetable astringents.
Argenti nitras (caustic) ...	Common salt in a demulcent fluid.
Arnica	Opium, morphia.
Arsenic	Moist peroxide of iron, or calcined magnesia, ammonia; cold affusion, artificial respiration. Note:—Two to four drachms of peroxide of iron may be given repeatedly.
Arseniate of iron ...	Ten grains of sulphate of copper (*cupri sulphas*) in two ounces of water, as an emetic. Ammonia, &c., as above.
„ of soda ...	Same as arsenic.
Atropia (artropine) ...	Same as belladonna.
Belladonna (deadly nightshade)	Emetic of ten grains of sulphate of copper, afterwards opium in proportion to quantity of belladonna taken.

Calx chlorat (chloride of lime)	Emetics, white of egg, milk, flour. *Never give acids.*
Camphor	Coffee.
Cannabis Indica (Indian hemp)	Hot brandy and water, vegetable acids, as lemon-juice, vinegar, &c. Patient may be allowed to sleep; blister to nape of the neck.
Cantharides (Spanish fly).	Emetics, emollients, opiates by mouth, enemata.
Chloride of zinc ...	Carbonate of soda emetics, warm demulcents.
Chloroform	Fresh air, artificial respiration.
Colchicum	Emetics, followed by demulcents; if their be coma, give brandy, coffee, &c.
Conium (Hemlock) ...	Emetics, followed by external and internal stimulants.
Copper (sulphate) (called *bluestone*)	White of egg.
Croton oil	Emetic of ten grains of sulphate of copper at once, then mucilaginous fluids, such as barley-water, gum-water, starch made very thin, and opium to check diarrhœa.
Digitalis (Foxglove) ...	Recumbent posture; and, after emetics, give stimulants, externally and internally.
Elaterium (squirting cucumber)	Emollient drinks, followed by small repeated doses of opium and warm bath.
Hyoscyamus	Stomach-pumps; emetics, internal and external stimulants, lemon-juice.

Iodine	Emetics, demulcents, and starch dissolved in water.
Laurocerasi aqua (cherry laurel water)	See arsenic.
Lead, sugar of	Sulphate or phosphate of soda, Epsom salts, succeeded by emetics and active purges; then give opium and plenty of milk.
Mercury (corrosive sublimate)	In poisoning by corrosive sublimate, albumen (egg) in moderate quantity (excess re-dissolves the compound). Four grains of corrosive sublimate require the white of one egg; the yolk is also of use. Wheaten flour and protochloride of tin may be given.
Morphia	See opium.
Nux vomica	Tobacco enema given till spasms abate, then discontinue it. Twenty grains of tobacco to eight ounces of water for enema.
Opium	Emetic of sulphate of copper, ten grains; stomach-pump, external stimulants, cold affusion, ammonia to nostrils, compelled exertion, artificial respiration.
Potash	Acids, acidulous salts, metallic salts, preparations of ammonia, belladonna, hyoscyamus, stramonium.
Savin	Emetics, then opiates and demulcents.
Soda	Same as potash.

Stramonium ...	... Same as belladonna.
Strychnia ...	... Same as nux vomica.
Tabacum (tobacco)	... Emetics, followed by stimulants; strychnia is also recommended.
Zinc, salts of ...	... Warm demulcents, such as linseed-tea, barley-water, emetics, and, should inflammatory symptoms follow, the usual appropriate remedies, including opium.
Zinci chloridi (chloride of zinc) ...	... Carbonate of sode, emetics, warm demulcents.

CHAPTER II.

MISCELLANEOUS.

THE SKELETON—IMPORTANT ORGANS OF THE BODY—WEIGHTS AND MEASURES—COOKERY FOR THE SICK—MEDICINES—DISEASES.

THE SKELETON.

The human body may be said to consist of two parts (1) the bony framework or skeleton, and (2) the soft parts supported thereby. It may be divided into the head, the trunk, and the upper and lower limbs.

Head.

The head includes the face and skull (*cranium*), in the cavity of which the brain is lodged.

Trunk.

The bony parts of the trunk are the spinal column, the chest and the hip-bones. The spinal column is composed of 24 segments (*vertebræ*)—seven in the neck, twelve in the back, and five in the loins—exclusive of the *sacrum* and *coccyx* in which it terminates below; above the spine supports the skull; below, it rests on the hip-bones (*ilia*) and also forms in its whole length a bony canal for the protection

of the spinal marrow. The breast-bone (*sternum*) in front, and the twelve vertebræ in the back with the twelve pairs of ribs (*costæ*) at the sides, are united together, and form the chest (*thorax*). The shoulder-blade (*scapula*) is situated at the back of the chest, and from it is suspended the upper limb. The sacrum and hip-bones are joined together and form an irregularly basin-shaped cavity called the *pelvis*.

Upper and lower limbs. There are two upper and two lower limbs. The upper are joined to the trunk at the shoulders. The shoulder itself is formed by the shoulder-blade and collar-bone (*clavicle*), which latter can be seen and felt distinctly on the front of the chest.

The upper limbs consist of three parts, *viz.*: the arm, the forearm and the hand. The arm has one bone (*humerus*) only, the forearm two (*radius* and *ulna*) lying together; between the arm and the forearm is the elbow-joint. The hand formed by numerous bones (*carpal, metacarpal* and *phalanges*) is joined to the lower end of the forearm at the wrist joint. The bones of the lower limb consider-ably stronger than those of the upper—are connected to the hip-bones at the hip-joints. The three parts of the lower limb are the thigh, the leg and the foot. In the thigh there is one bone (*femur*) only; there are two in the leg (*tibia* and *fibula*), the same number as in the forearm. The thigh and leg are connected to each other at the knee-joint which is covered in front by the knee-cap (*patella*). The foot, formed by numerous bones (*tarsal, meta-*

tarsal and *phalanges*) joins the leg at the ankle-joint.

IMPORTANT ORGANS OF THE BODY.

The soft parts are the brain and nerves, the muscles, the blood-vessels, and the important organs contained within the chest and belly (*abdomen*), the whole being covered externally by the skin.

Brain.

The brain and spinal marrow give off the nerves which divide into branches for the different parts of the body and together form the nervous system, upon which, taken as a whole, depend sensation, perception and the will.

The muscles, under the influence of the will, exert a power of contraction by means of which the limbs and different parts of the body are made to move.

Organs of circulation.

The blood-vessels and the heart comprise the organs of the circulation. The circulation of the blood depends upon the contractile power of the heart, which may be compared to a hollow muscular pump about the size of a closed fist, and situated in the left side of the chest, where under the nipple, it can be felt distinctly beating seventy or eighty times a minute during life. It is divided into two parts, spoken of as right and left sides; each side again into two chambers—a thin receiving chamber (*auricle*) leading to a thick pumping chamber (*ventricle*), but in such a manner that the chambers of the one side do not communicate with those of

the opposite side; the left side of the heart contains pure, red blood, which it receives from the lungs, and then immediately propels to the various parts of the body as a supply of nourishment; the tubes or blood-vessels by which it is conveyed to the tissues, are called "arteries."

Pressure on one of these tubes causes a throbbing sensation to be communicated to the finger placed on the vessel,—due to the wave sent along the blood by each beat of the heart. This throbbing is called *the pulse*. The arteries are largest in the trunk and upper parts of the limbs; as they pass outwards, they keep dividing like a tree, always into smaller branches, and finally end in the tissues in minute net-works called "capillaries." In the capillaries the blood moves slowest and parts with its nutritive elements, and at the same time takes up the waste materials produced by the wear and tear of the body, which has the effect of rendering it impure and darker in colour. On leaving the capillaries the blood enters another set of tubes called "veins," and in a gentle stream is conveyed by them to the right side of the heart, by which it is then forced to the lungs to be purified, and then when purified, transmitted to the left side of the heart for distribution to every part of the body.

In this manner a continuous current of blood is established, a throbbing, arterial current, under high pressure moving from the heart to the capillaries of the various tissues and organs of the body and a non-pulsating, venous, low-pressure current

slowly flowing from the capillaries towards the heart.

Organs of respir-ation.

The lungs, two in number, are contained in the chest, one on either side of the heart. They form the organs of respiration, or breathing. Their use is to purify the venous blood—(*a*) by exposing it to the air during its passage through them in order that it may obtain a due supply of oxygen—a gas forming a fifth part of the atmosphere, and essential to life—and (*b*) by getting rid of carbonic acid, a gas injurious to life, and resulting from the wear and tear of the tissues, and by this means converting it into arterial blood. Respiration is effected by the natural movements of the chest walls and of the diaphragm, a large muscle forming the lower boundary of the chest. While it continues, the chest alternately enlarges and diminishes in size ; each time it enlarges, air is drawn into the lungs through the nose and the windpipe (*trachea*) and its subdivisions (*bronchial tubes*) and branches, around the minute terminations (*air celles*) of which are spread out fine networks of blood-vessels in which those (*pulmonary arteries*) carrying impure blood from the right side of the heart to the lungs end, and those (*pulmonary veins*) conveying purified blood from the lungs to the left side of the heart commence. On the other hand each time the chest diminishes in size, air returns through the same channel, carrying with it the impurities of respiration. The former act is called *inspiration* and the latter *expiration*. The combined movement (*respiration*) takes place during health about 18 times a minute. Below the chest, and separated

from it by the diaphragm, is the abdomen; within the abdominal cavity are contained the stomach and intestines, the liver, spleen, kidneys, &c. The upper part, underlying the breast-bone is called the "pit of the stomach;" in this region are found the stomach, part of the liver and great blood-vessels.

Organs of digestion. In the stomach the principal change of food in digestion takes place.

The tube leading from the mouth to the stomach is called the gullet (*æsophagus*); from the stomach the altered food passes along the intestines; in the upper four-fifths of the intestinal canal—that is to say in the small intestine—the food is acted upon by the secretions from the liver, pancreas, &c.; the nutritive materials thus prepared are slowly absorbed by vessels in walls of the small intestine, and from these are conveyed into the current of the blood, while the rejected portions of the food find their way out through the continuation of the canal (the large intestine) and are passed from the bowel by the *anus*, as the outlet is called.

Liver. Spleen. Kidneys. On the right side of the abdomen, just underneath the ribs, is the liver, and, in a corresponding position on the left side, the spleen; behind on both sides of the spinal column, are the kidneys, from each of which a tube (*ureter*) conveys the urine to the bladder which lies behind the pubes with the rectum behind it; finally the urine is voided by a tube called the *urethra*. In the female

Uterus. the vagina terminating in the uterus lies between bladder and rectum.

WEIGHTS AND MEASURES.

gr. j	= 1 grain.	
℈ j	= 1 scruple	= 20 grains.
ʒ ss	= half a drachm	= 30 ,,
ʒ j	= 1 drachm	= 60 ,,
℥ ss	= half an ounce	= 4 drachms.
℥ j	= one ounce	= 8 ,,
℔ j	= 1 pound	= 16 ounces.
♏ j	= 1 minim.	
fl ʒ j	= 1 fluid drachm	= 60 minims = 1 tea-spoonful.
fl ʒ ij	= 2 fluid drachms	= 1 dessert-spoonful.
fl ℥ ss	= half an ounce	= 4 fluid drachms = 1 table-spoonful.
fl ℥ j	= 1 fluid ounce	= 8 fluid drachms = 2 table-spoonsful.
fl ℥ ij	= 2 fluid ounces	= 1 wine-glassful.
O j	= 1 pint	= 20 fluid ounces.
gtl	= drop.	

WEIGHTS AND MEASURES OF THE BRITISH PHARMACOPŒIA WEIGHTS.

1 grain, gr.
1 ounce, oz. = 437·5 grains.
1 pound, ℔ = 16 ounces = 7,000 grains.

MEASURES OF CAPACITY.

1 minim, min.	
1 fluid drachm, fl. drm.	= 60 minims.
1 fluid ounce, fl. oz.	= 8 fluid drachms.
1 pint, O.	= 20 fluid ounces.
1 gallon, c.	= 8 pints.

RELATION OF MEASURES TO WEIGHTS.

1 minim is the measure of			0·91	grains of water.
1 fluid drachm	,,		54·68	,,
1 fluid ounce	,,	1 ounce or	437·5	,,
1 pint	,,	1·25 pounds or	8750·0	,,
1 gallon	,,	10 ,, or	70000·0	,,

COOKERY FOR THE SICK.

Diet.

Every hospital sister or nurse should render herself familiar with the diet-table. She ought to have at her fingers' ends the materials of every diet in the scale, and, in a general sense, their relative nourishing value.*

(i) FARINACEOUS DIETS.

Sopped Bread or Biscuit.

1. Put a biscuit, or part of one, or a crust of bread, in a saucer, and pour upon it a small quantity of boiling water; cover it down close with a teacup or small basin. In about ten minutes you will find it swelled and perfectly soaked; you may then beat it up, and add more water, tea or coffee, and sweeten. This makes a more agreeable kind of sop than by merely breaking a biscuit into water or tea.

Plain boiled Bread and milk.

2. An old fashioned dish rarely well made. Put stale bread into a basin, the pieces of equal size, the shape of dice, but larger; make the milk boil, and the moment it rises, pour it over the bread; cover the basin close with a plate for ten minutes; the bread will then be perfectly and equally soaked.

Oatmeal Gruel.

3. This is the commonest form of low diet in an English Hospital yet very rarely made well. It only requires attention. Bring about a pint of water to the boil in a saucepan, gradually stir in an ounce of groats or oatmeal and boil gently for 45 minutes. It requires stirring round occasion-

* There are many books on diet and the value of foods. For this and many kindred subjects the nurse should refer to Parkes' "Hygiene," a book in which knowledge and sound practical sense are combined in a high degree.

ally. A little salt or sugar as best suits the taste may be added and finely grated nutmeg shaken over top, when poured into a cup is appreciated by most patients. This is a favourite and old fashioned posset for lying-in women.

Oatmeal porridge is made in the same way but it is made slightly thicker by adding more oatmeal.

Arrow-root.

4. A dessert-spoonful of arrowroot will thicken about half a pint of water. Put a small quantity of cold water to the arrowroot, and mix it well; then add by degrees the half pint of boiling water, stirring it all the time, and until it is of a pleasant thickness and clear; boil for five minutes. The white of an egg may be beaten up with it. It may be sweetened and flavoured with lime or orange water juice, or eaten plain. *Boiling milk* may be used instead of water.

Arrowroot pudding is made in the same way; with the addition of one egg and three tea-spoonsful of powdered refined sugar, which have been previously beaten up together. The pudding thus formed may be baked, or it may be boiled in a basin.

Arrowroot blanc-mange, same as a above; but use three times the amount of arrowroot. Pour it into a shape to cool and set; after which it may be turned out.

Tapioca, Sago and Semolina.

5. These should be soaked in cold water for five or six hours; then simmered in the same until the grains become quite clear, and something like a thick jelly.

It may be sweetened slightly, and the white of

an egg may be beaten up in it; a little lime or orange juice will give a flavour.

Rice Caudle.

6. Rub a table-spoonful of rice into a little cold water. Have about half a pint of water boiling in a saucepan; pour in the rice, and boil it till of a pleasant thickness; add sugar, lime juice, powdered cinnamon or nutmeg, as may be desirable. Boil it till it is quite smooth.

Boiled Rice.

7. Thoroughly cleanse half a pound of rice in three separate washings—bring two pints of water to the boil, gradually add rice, cover and boil slowly for 45 minutes. Drain in a sieve or clean cloth for 15 minutes, put it in a saucepan with half pint of milk and set it near fire for 10 or 15 minutes. It may be eaten with sugar or salt or mixed with fresh fruit or some preserve.

Flour Caudle, or thick milk.

8. Put a large spoonful of flour into about five spoonsful of cold water; heat five spoonsful of new milk slightly sweetened, and, when boiling, pour it gradually over the flour and water; put it on the fire and boil twenty minutes, stirring all the time.

Another mode is as follows:—

Tie a handful of dry flour tightly in a cloth, and boil as if it were a dumpling for an hour; rub off the outer hard skin, and grate the flour; mix in milk as above. Baked flour may be used in a similar way. This is good food for infants whose bowels are weak.

Simple Bread Panada.

9. Put any quantity of grated stale bread into enough of water to form a moderately thick pulp; cover it up and leave it to soak for an hour; then

beat it up with two table-spoonsful of milk, and a small portion of refined sugar, and boil the whole for ten minutes, stirring all the time.

Salt may be used instead of sugar, and the yolks of one or two eggs are sometimes added. This is much eaten in French Hospitals.

10. Take some very thick smooth gruel, and when strained, and still hot, thin it with boiling milk. Milk Porridge.

11. Put two ounces of sago into a quart of water, and boil until a mucilage is formed. Then rub half an ounce of loaf sugar on the rind of a lemon, and put it, with a fluid drachm (a tea-spoonful) of tincture of ginger, into half a pint of sherry wine; add this mixture to the sago mucilage, and boil the whole for five minutes. Sago Posset.

This is an excellent cordial where acute diseases, not of an inflammatory kind, have left the patient in a state of great debility. A large wine-glassful may be taken at one time, at intervals of four and five hours.

(ii) Puddings.

12. Wash two table-spoonsful of rice, and simmer them in a pint and a half of milk, until the rice is soft; then add two eggs, beaten up with half an ounce of sugar. Bake it for three-quarters of an hour in a slow oven. Common rice pudding.

13. Cut some bread and butter very thin; place it in a pie dish as lightly as possible till three parts full; break into a basin one egg; add two tea- Bread and butter pudding

from Soyer's receipt. spoonsful of flour, three of brown sugar; mix all well together; add to it by degrees a pint of milk, a little salt; pour over the bread; bake for about half an hour. The butter may be omitted.

Plain batter pudding, boiled or baked. 14. Beat up well three eggs; add half a pint of milk; then take a little flour and a pinch of salt; pour some of the milk and egg upon it, and mix perfectly smooth; add flour till the batter is slightly stiff. If it is to be boiled, flour a cloth and tie it tightly over the cup or basin, and boil for twenty minutes; if to be baked, butter a small dish, pour in the batter, and bake lightly; watch it rising, as it ought to be very light.

Maccaroni and milk. 15. Take three curled pieces of maccaroni, soak them in a pint of warm milk until they are soft and well swollen; add a pinch of salt, and boil gently over a slow fire for fifteen or twenty minutes.

It may be flavoured by putting a little cinnamon into the milk before boiling, this is eaten with salt or sugar as desired.

(iii) Tea and other Drinks.

Tea. 16. In making tea great care must be taken that the water should be fresh and at boiling point. The vessel the tea is made in should first be heated by being rinsed with boiling water. The quantity of tea should be one tea-spoonful for half a pint of water for strong tea and 5 to 7 minutes are sufficient to make the tea, for if left stewing it spoils the flavour. Care should be taken when preparing a cup of tea for an invalid to put in very little sugar as it may not be liked. Cream or the yoke of an

egg well beaten may be added as it will help to nourish the patient.

17. Put the coffee into an ordinary coffee-pot, pour *boiling* water on it, one pint of water to every half-ounce of coffee; let it boil up two or three times, lifting the pot from the fire when the coffee rises, otherwise it will quickly boil over. Pour out and return a cupful three or four times; put in two or three shreds of isinglass, or a little piece of dried sole-skin; add a spoonful of boiling water, and boil the coffee up again. Let it stand by the side of the fire for five minutes. To make Coffee.

The isinglass, or sole-skin, is not absolutely necessary; but it is hardly possible to make perfectly clear coffee without either.

When a French coffee-pot is used, heat the vessel, and put the coffee into the upper division; then pour boiling water over it, sufficient for the quantity of coffee required.

If the coffee has been roasted some time, it should be warmed in an oven previous to grinding. Have boiling milk ready to be used with the coffee.

18. Cut a piece of crusty bread, about a quarter of a pound in weight; place it upon a toasting fork, and hold it about six inches from the fire; turn it often, and keep moving it gently until it is of a light yellow colour. Then place it near the fire, and when of a good brown chocolate colour, put it into a jug, and pour over it three pints of boiling water; cover the jug until cold, then strain it into a clean jug, and it is ready for use. Toast and Water.

Apple Toast and water.

19. Bake a middle-sized apple, over which you have put a tea-spoonful of brown sugar; when well done and nicely browned, add to the toast and water. It will be ready for drinking in an hour after. A small piece of orange or lemon-peel put into the jug at the same time as the bread, is a great improvement.

Apple Barley-water.

20. Add to one pint of pearl barley-water (see No. 25) half a pound of apples, cut in slices, with the skin on, removing only the pips; cut a lemon in slices; boil gently until the apples are done; pass through a colander.

This is a very refreshing beverage.

Arrowroot water.

21. Put in a pan three ounces of arrowroot, two ounces of white sugar, the peel of half a lemon, one-fourth of a tea-spoonful of salt, four pints of water; mix well; set on the fire; boil a few minutes. It is then ready for use either hot or cold.

Lemonade

22. Prepare as above, adding the juice of one lemon or more, according to the quantity required and the size of the fruit; one lemon to a pint is the usual proportion.

Another way is as follows:—

Peel one lemon or more, according to the quantity required and the size of the fruit. Pour a small quantity of boiling water over the peel, and cover it close. Squeeze the lemon and remove the pips. Pour some boiling water upon sugar in a separate jar or jug, or basin. When the sugar is perfectly melted, put the juice to it; add cold water, tasting as you proceed, till you find the drink does not taste

too strongly of the juice; then put in enough of the peel flavouring, as agreeable.

Be careful to melt the sugar in water before you add juice.

23. Put two drachms of cream of tartar, the juice of one lemon, and a little peel in a large jug; pour on them about a quart of boiling water; stir, and cover close till cold; sweeten to your taste. Imperial Drink.

24. Take one ounce and a quarter of sweet almonds blanched, five drachms of sugar, and a quart of soft water. Beat the almonds with the sugar in a porcelain mortar into a smooth pulp, adding the water gradually, and stirring assiduously until the whole of the fluid is added; then strain through linen. Almond Emulsion.

An excellent demulcent in febrile affections.

25. Wash an ounce of pearl barley in cold water three or four times, throwing away the water each time, as it will be very dirty; or you may boil for a few minutes, and then pour the water away. Then add about a pint and a half water, a bit of lemon-peel, and a little sugar. Let it simmer, stirring it constantly, till of a nice thickness; strain, and add lemon-juice. If a very slight flavour of lemon be preferred with very little acid, put a slice of lemon with the barley and the water. Sweeten to your taste. Pearl Barley-water.

A few sweet almonds, beaten to a paste, gives a pleasant flavour to this drink, and to the preparation of arrowroot, rice, &c. Where acid is not allowed, almonds may be substituted. Apples may

also be sliced into pearl barley-water when hot (see No. 20). Apples boiled to a pulp may be mixed with pearl barley drink or plain water.

Rennet whey.

26. Infuse a moderate sized piece of rennet in a sufficient quantity of boiling water to abstract all the soluble matter; separate the fluid; and stir a table-spoonful of it into three pints of milk; cover up the mixture with a clean cloth, and place it before the fire until it forms a uniform curd. Divide this curd with a spoon, and, pressing it gently, separate the whey.

Good whey should be nearly transparent, of a pale straw-yellow colour, and should have a sweetish taste. It constitutes ninety-two parts in one hundred of the milk; and, besides water, contains sugar of milk and some salts.

It is an excellent diluent in febrile affections.

When boiled down to one half, it proves to be nutritive as well as diluent.

Vinegar and Tamarind whey.

27. A small wine-glassful of vinegar sweetened with a dessert-spoonful of Muscovado sugar; or two table-spoonsful of tamarinds, stirred into a pint of boiling milk, and the whole boiled for fifteen minutes and strained, form these wheys.

They are useful refrigerant drinks in febrile diseases.

Artificial Goat's milk.

28. Take an ounce of fresh suet, cut into small pieces, and tie them in a muslin bag large enough to leave the morsels free from compression; boil this in a quart of cow's milk, sweetened with a quarter of an ounce of white sugar-candy.

This is an excellant article of diet in scrofulous emaciation, and in the later stages of pulmonary consumption.

29. Take half an ounce of bruised mustard seeds, and one pint of milk; boil them together until the milk is curdled, and strain to separate the whey. It may be taken in a tea-cupful at a time. This whey has been found to be a useful drink in dropsy: it stimulates the kidneys; and consequently augments the urinary secretions. Mustard Whey.

(iv.) Animal Preparations.

30. In cases of exhaustion it is sometimes of the greatest importance to prepare strong nourishment very quickly, and also to give a large quantity of nourishment in a small bulk. Mutton broth quickly made.

Take two or three ribs out of the middle of a neck or loin of mutton. Take away the fat; chop the bones across, and score the meat across after having beaten it; cut in small pieces; put a little cold water upon the meat, and let it warm through; then add about three-quarters of a pint of water and simmer slowly; if scum rises, remove it; cover the pan close, and the broth will be ready in half an hour.

When this is poured off, a better broth may be slowly made from the meat and bones.

31. Take a small chicken, free it from the skin, and from all the fat between the muscles; and, having divided it longitudinally into two halves, remove the whole of the lungs, the liver, and every Chicken broth.

thing adhering to the back and side bones. Then cut it, bones and muscles, by means of a strong sharp knife, into as thin slices as possible; and, having put these into a pan with a salt-spoonful of salt, pour over them a pint of cold water; cover the pan, and simmer over a slow fire for two hours; lastly, put the pan upon the hob for half an hour, and strain off the broth through the sieve.

Rabbit broth. *Rabbit broth* is made in the same way as chicken broth, and is considered by many persons to be superior.

Another way:—

Take one half-grown chicken or rabbit, cut up into joints, and soak in a tea-cupful of cold water for one hour. Then add a salt-spoonful of salt, and simmer slowly over a slow fire for half an hour. Boil quickly for five minutes, strain, and serve.

Chicken panada. 32. Cut up the meat from which the chicken broth has been made, pound it in a mortar if obtainable, if not roll it with a rolling-pin, put it into a stew-pan on the fire with a little milk and salt; stir it, do not let it boil, add a little bread-crumb to make it of a nice thickness, remove it from the fire, stir in one whole egg to the meat of each quarter of a fowl.

It may be used either as spoon meat when hot, or made into little balls, and served in the chicken broth, or mutton broth.

Meat panada may be done in the same way.

Beef-tea. 33. Take one pound of lean but juicy beef; remove all skin, fat, and gristle, cut it into cubes the

size of dice and place it in a saucepan with one pint of cold water, and let it soak for an hour. Then put it over or near a slow fire, and let it simmer for four hours, and take off any scum that may arise; boil quickly for five minutes, strain and serve.

34. Have ready a saucepan of boiling water; break an egg carefully into a tea-cup, so that the yolk is not burst, and put the tea-cup into the saucepan. Let it simmer for about three minutes, and then take it out carefully. By this plan it takes rather a longer time to poach an egg, but it is done to a nicety and in the most cleanly way. To Poach an Egg.

A piece of bread and butter, or bread toasted lightly, should be placed in the dish or plate, and the egg slipped upon it from the cup without bursting it.

(v.) Soups:—Foreign Receipts.

35. Wash good fresh oatmeal in three successive waters, drain through a sieve. Now add one or two slices of lemon, first carefully peeling and removing the pips. Add sufficient water to make it of the same consistency as oatmeal gruel. Boil it slowly, and stir it for an hour. Strain it through a hair sieve, and put sugar or salt, as best suits the taste. German Oatmeal Soup.

About a pint of water to an ounce of oatmeal is the proportion.

36. Wash an ounce of pearl barley in cold water three or four times, throwing away the water each time. Add about a pint of boiling water, a small piece of fresh butter. Let it simmer, stirring it Pearl Barley Soup.

constantly till of a proper thickness: season it with salt and finely-cut parsley, mace or nutmeg.

Another way:—

Put half a cupful of good washed pearl barley into an earthenware pot, with a small piece of fresh butter about the size of a hazel nut, and a piece of fine cinnamon. Add a pint of boiling water, and a little salt and sugar. Cook the whole over a slow fire until it is soft, then strain it through a fine hair sieve. Beat the yolk of an egg, and stir it gradually into the soup. More boiling water may be added while it is cooking if necessary.

(vi.) Jellies and Wines.

Jelly. 37. Jelly can be made either of nicely-cleaned cow-heels, or scalded calf's-feet. Buy the feet with the hair on, because when ready prepared, a great deal of the substance which makes jelly has been boiled away. In order to get the hair off, have ready a saucepan of boiling water; hold the foot so that the water just covers the hair; from five to ten minutes is long enough; the hair will scrape off easily with a knife.

Boil three calf's-feet or two cow-heels in three quarts of water till they are broken, and the water half wasted. Strain it, and when cold, take off the fat, and remove the jelly from the sediment; then put the jelly into a saucepan with six ounces of sugar, four glasses of any description of white wine, the juice of a large lemon, and a small piece of the peel; add the whites of five eggs well beaten, and their shells broken; set the saucepan over the

fire, but not too close, stir the jelly until it boils, but not after; let it boil slowly twenty minutes after it rises to ahead. Throw in a tea-cupful of cold water, let it boil five minutes longer, then take the saucepan off the fire; cover it close, and keep it half an hour. Then pour the liquid through a jelly bag (which has first been dipped in hot water and squeezed nearly dry) into a basin or shape underneath. Do not press the bag or the jelly will be cloudy. *A jelly bag* is made of coarse flannel shaped like a V, with two strings, on the broad part, by which to tie it to the backs of two chairs; a coarse hucker-back towel tucked together, making the corner the point, is even a better jelly bag.

Calf's-foot jelly should be made in a block-tin saucepan, kept bright outside and in, and used only for this purpose. The slightest grease or black will give the jelly an unpleasant flavour.

38. This may be prepared with gelatine or isinglass, squeeze the juice from the fruit and remove the pips, and put some of the rind into it; melt the sugar perfectly in some hot water, and pour it on the juice. Six ounces will require about a quarter of a pound of sugar. Taste the fruit and sugar, and if very rich, a little water may be added. Having melted the isinglass or gelatine (about an ounce) in a very small quantity of water, add it to the syrup, and just boil for a minute; take out the rind. Orange Jelly.

This jelly is not intended to look clear, and therefore need not be strained, as straining diminishes the strength.

A means of giving Wine.

39. Toast lightly a piece of bread, rather more than an inch in thickness; lay it in a soup-plate or large saucer; put sugar upon it—either fine brown or powdered white; pour the wine (usually) port upon it, and see that the toast is soaked; grate nutmeg over it.

The size of the toast must of course depend upon the quantity of wine to be taken.

To mull Wine.

40. Beat up the yolk of one or more eggs perfectly; scald a glass or more, as required, or port or white wine, and melt in it a lump or two of sugar; stir the egg rapidly one way, never changing the direction of the spoon, and keep stirring while you pour in the wine very gradually. Have another glass or basin ready, and pour the mixture quickly, two or three times, from one vessel to the other, which process makes it froth.

White wine Whey.

41. Put half a pint of new milk, slightly sweetened, into a saucepan and boil it; the moment it rises, while still on the fire, pour in a small glass of white wine. (The weak wines, such as Cape or Marsala or common Lisbon, are best.) Let it boil again, and set the saucepan on the side till the curd forms one lump; be careful not to stir it; the whey will pour off free from the curd. If too strong, add a little water.

New milk with brandy or rum is sometimes given, a tea-spoonful at a time, in cases of great exhaustion. Where the patient has scarcely strength to swallow, these nourishing and stimulating fluids can be sucked through a bent tube with very little fatigue.

42. Take a quart of barley-water, and boil it down one-third; then add to it, whilst it is hot, a pint of sherry wine, a drachm of tincture of cinnamon, and an ounce of refined sugar. Aromatic Barley Wine.

A wine-glassful, two or three times a day, is a good cordial in convalescence attended with much debility.

MEDICINES.

Medicines are classified according to their effects on the human frame. The principal classes are as under:— Medicines

Antacids are medicines which correct acidity of the stomach and bowels. Antacid medicines, when taken internally, combine with the acid in the stomach or bowels in such a way as to render it harmless, relieving, at the same time, symptoms, such as heart-burn, flatulence, &c. The following are antacids:—The carbonate of magnesia, chalk, bicarbonate of soda, and the bicarbonate of potash. The bicarbonates are preferred to the carbonates. Antacids.

Astringents are medicines which are used to prevent relaxation of tissues and to check discharges. The same medicines, when used to stop bleeding, are called styptics. The following are the principal astringents:—Diluted sulphuric acid, alum, sulphate of zinc, acetate of lead (sugar of lead), perchloride of iron, sulphate of copper, nitrate of silver, oil of turpentine, tannic acid, gallic acid and matico. The most common affections for which astringents and styptics are required are diarrhœa, cholera, bleeding from the nose, lungs, bowels, and from small vessels on the exposed parts Astringents.

of the body. Gallic acid, acetate of lead, solution of perchloride of iron and diluted sulphuric acid are about the most powerful styptics.

Anthelmintics or vermifuges.

Anthelmintics or vermifuges are medicines which are used to destroy worms or cause them to be expelled. The principal vermifuge medicines are as follows:—

(*a*) Those which act by destroying the worm (vermicides), as turpentine, male-fern, pomegranate, kousso, santonine and kamala.

(*b*) Those which act mechanically by wounding the worm, as tin-filings and hairs of the pod of the cowhage.

(*c*) Those which act by causing purgation (increasing the action of the bowel and causing it to expel the worms). Under this head come calomel, scammony and jalap. These are well adapted for children.

Certain anthelmintics are more effectual against one class of worms than against others. When a case of *tape-worm* has to be dealt with, turpentine, male-fern, kamala, pomegranate root bark and kousso may be used.* In the case of *round-worms*, calomel, scammony, jalap, oil of turpentine, tin-filings, santonine and cowhage will prove useful, and *thread-worms* may be got rid of by enemas of turpentine, steel drops, quassia, assafœtida, common salt, &c. Anthelmintics act more effectually when combined with other medicines of the same class than when given singly. As adjuncts to anthel-

mintics, ammonium chloride, common salt and iron and bitter tonics are useful internally in preventing excessive secretion of intestinal mucus which affords a nidus for intestinal worms.

Refrigerants. Refrigerants are agents which are used to lower the warmth of the body, when, from fever, it has been raised. The most effectual is cold, in the form of ice, cold air, cold baths, cold lotions, cold drinks, &c. In diminishing heat, they, in the meantime, lessen the action of the blood-vessels and even of the heart. Medicinal substances which have the same effect are acids, nitre, cream of tartar, chlorate of potash. Refrigerants are used externally to reduce local inflammation and internally to moderate febrile action.

Diuretics. Diuretics are medicinal agents which increase the flow of urine. These are employed to restore the action of the kidneys when urine is diminished; to remove dropsical accumulations by increasing the action of the kidney; to cause the kidneys to remove noxious substance in the blood; and to relieve inflammation. The principal diuretics are water, bicarbonate of potash, nitre, cream of tartar, acetate of potash, acetate of ammonia, oil of turpentine, digitalis, colchicum, squill and tincture of iron.

It would be hurtful to use diuretics, water perhaps excepted, in inflammation of the kidneys.

Antispasmodics. Antispasmodics are agents which relieve spasm. There are several medicines which have this effect, among them are opium, belladonna, assafœtida, valerian, camphor, musk, castor. They are given in hysteria, chorea, asthma, epilepsy, lockjaw, &c.

Cathartics (purgatives.)

Cathartics (purgatives) are medicines which cause evacuations from the bowels. Some cathartics act mildly, others powerfully. Laxative implies a mild cathartic, as sulphur, manna, castor-oil, tamarind, prunes, figs and honey. These are generally prescribed for children and for women who are pregnant. Drastic or hydragogue cathartics include jalap, scammony, gamboge, croton oil, podophyllin, colocynth and elaterium. In large doses these act as poisons. Saline cathartics comprehend Epsom salts, common salt, cream of tartar, &c.

Purgatives are used to empty the bowels of their contents; to remove dropsical accumulations by action upon the bowels; and to relieve the head. Powerful purgatives ought not to be given during the prevalence of cholera, when milder ones will answer the purpose. The use of saline purgatives must be withheld in the case of old and debilitated persons. Purgatives containing mercury will do harm to patients with scurvy. Women during their menstrual period ought not to take purgatives, and powerful purgatives do harm during pregnancy.

Emetics.

Emetics are medicines which cause vomiting. Emetics are given to empty the stomach of undigested food, poison, or other foul matter, or merely to lessen the action of the heart. They are sometimes given to expel foreign bodies lodged in the throat. The common emetics are ipecacuanha powder, tartar emetic, mustard and common salt. Sulphate of zinc and sulphate of copper are emetics which are used in cases of poisoning, as they act speedily and

effectually. If these cannot be had, mustard or common salt may be used instead. Tartar emetic sometimes acts very violently. This violent action may often be checked by drinking a cup of strong tea. Avoid, as much as possible, giving emetics to patients advanced in age and to pregnant females.

Diaphoretics are medicines or rather agents which cause increase of perspiration. Heat may be looked upon as a diaphoretic, because it causes the skin to perspire freely. This agent is used in the form of the hot air or the hot vapour bath. Sweating under the use of warm clothing occurs as an effect of heat. During the hot weather, the skin, as a rule, acts freely: this happens on account of the increased heat. Diaphoretics are used to restore the action of the skin when checked by any cause and to lessen also the quantity of blood circulating in deranged organs, which is effected by increasing the quantity of blood in the skin. Sweating is promoted by large quantities of warm drinks, such as tea, barley-water, and by keeping the skin warm. Persons perspiring freely should be cautioned against sudden exposure to cold. **Diaphoretics.**

There are a great many diaphoretics, but the principal are acetate of ammonia, tartar emetic, ipecacuanha powder, wine and opium.

Stimulants are medicines which increase the action of the heart. The most marked effect of stimulants is to increase the warmth of the body as well as to increase the force and frequency of the pulse. These are prescribed in disorders in which there is much debility and exhaustion. They are **Stimulants.**

not generally given when there is high fever and severe inflammation of organs. The principal stimulants are alcoholic fluids, ether, ammonia, camphor and chloroform. Some stimulants are called diffusible on account of their acting speedily on the body, as ether, alcohol and ammonia.

Sedatives or contra-stimulants.

Sedatives or contra-stimulants are agents which have an opposite effect to that of stimulants. Most sedative medicines are poisonous. They are dilute hydrocyanic acid (prussic acid), aconite, tartar emetic, conium, digitalis, tobacco, belladonna. Sedatives are given to reduce the force of the heart and blood-vessels in fever and severe inflammations, and to allay palpitation from heart-disease. Blood-letting is a powerful sedative, but seldom employed in the present day.

Tonics.

Tonics are medicines which give tone, firmness and vigour to the body when it is relaxed and debilitated, as cinchona, quinine, mineral acids, as the sulphuric, nitric and hydrochloric acids, iron and its salts, nitrate of silver, oxide of zinc, sulphate of zinc, quassia and strychnine. The first effect of a tonic is to increase the appetite and assist digestion. After a time, the muscles become firmer and acquire strength, the pulse becomes stronger, and the person can stand exertion better. Tonics are used in cases of debility, indigestion, or a bloodless condition of the body.

Narcotics.

Narcotics are remedies which cause insensibility and sleep. They generally cause some previous excitement, which is followed by depression, whereas sedatives give rise to no excitement whatever.

Narcotics are divided into *soporifics* from their causing sleep, and *anodynes* from their property of allaying pain. Narcotic medicines are opium, belladonna, stramonium, conium, calabar bean, hyoscyamus and cannabis. There are other narcotics, but those mentioned are in common use, and are given to procure sleep, allay pain, stop secretion, and to subdue inflammation. Narcotics act chiefly on the brain and spinal cord. The pupil of the eye is affected by them, dilating under the use of belladonna, stramonium, hyoscyamus and tobacco, and contracting when opium and calabar bean are used. Persons accustomed to the use of narcotics require large doses. Children bear narcotics badly. Caution is required in their use when there is lung, heart and brain disease.

Emollients or demulcents. Emollients or demulcents are substances which soften and protect the sensitive surfaces of the body. Their action is opposed to that of irritants and astringents. Olive oil, almond oil, linseed oil, gum arabic, tragacanth, vaseline, treacle, honey, isinglass, white of egg, glycerine, barley and milk are those which are most frequently used. External applications, as fomentations and poultices, act as emollients.

Diluents. When it is desired to increase the quantity of fluid in the blood, diluents are used. The principal diluent is water. Diluents are employed in fevers to quench thirst. They are used also to promote the action of the skin, kidneys, or lungs.

Expectorants. Expectorants are medicines which either increase secretion from the membrane lining the air pas-

sages, or promote the expulsion of accumulated secretions from the same passages. The principal are ipecacuanha, tartarized antimony, squill, carbonate of ammonia, balsam of tolu, balsam of peru, and copaiba. Expectorants are not given when fever is present.

Diuretics, purgatives and medicines which contain opium interfere with the action of expectorants. Emetics and diluents aid it.

Counter-irritants.

Counter-irritants are agents which cause redness and even inflammation in parts of the surface of the body to which they are applied. They are employed to subdue deeper seated inflammation and some of its results. Some of these act by causing mere redness of the skin, such agents are called *rubefacients*, as mustard, which is often applied in the form of poultice to relieve chest inflammations and inflammation of the stomach; spasm also is relieved by rubefacients, as, for example, that which occurs in colic and cholera. A mustard poultice applied over the belly, in these cases, often proves beneficial. The principal rubefacients are mustard, hot water, liniment of ammonia, oil of turpentine, and other volatile oils as well. Those counter-irritants which cause blisters are called *vesicants*. Mustard, if long applied to the skin, will cause a blister and even ulceration. On this account it is necessary to be cautious in its use on persons who are insensible to pain. One should be cautious how mustard is used as a rubefacient in children. The principal vesicants are the emplastrum cantharidis and the emplastrum

and acetum cantharidis, and the strong liquor ammoniæ. Blisters ought not to be used at the commencement of inflammation; they ought not to be applied over parts where the skin is tender, nor over a bony projection. The blistering substance ought not to be allowed to remain on more than six or eight hours. It is objectionable also to apply a blister over the chest or breasts during pregnancy.

In inflammation of the larynx it is not advisable to apply a blister over the seat of the disease. Caution is required in the use of blisters for children.

Caustics. Caustics are agents which destroy animal tissues. Those which completely destroy parts to which they are applied are called *escharotics.* They form an eschar. The escharotics are sulphuric acid, nitric acid, hydrochloric acid, caustic potash, chloride of zinc. These are used to remove excrescences, as warts, polypi; to form issues; to destroy the virus of rabid animals and the venom of serpents. The mild caustics are iodine, lime, alum, sulphate of copper, nitrate of silver, red oxide of mercury, white arsenic, acetic acid and creasote. These are used also to destroy warts and to promote the healing of ulcers. The nitrate of silver, one of the caustics, is used in erysipelas to prevent the spreading of the disease.

Castor-oil. The plant which yields this oil grows in the East Indies. The oil is obtained from the seed. Cold-drawn castor-oil is the oil expressed from the seed, without the aid of heat. It is thick and colorless. It is a mild and safe purgative. It is used in con-

stipation to remove hardened fæces from the bowels, and in colic. It is peculiarly useful, in habitual constipation, for children, and for pregnant and lying-in women.

The dose is from a tea-spoonful to two table-spoonsful, in a little warm milk or some peppermint water or aniseed water. When a dose fails to act, this medicine may be repeated after a few hours. It may be administered in the form of enema, by mixing two ounces of castor-oil with twelve ounces of warm water or congee water.

Ipecacuanha. Ipecacuanha is a pale brown powder, having a bitter taste and disagreeable smell. It does not dissolve in water, but mixes with it. It is used as an emetic in doses ranging from twenty to thirty grains. A grain of tartar emetic added to it will increase the effect. Warm water should be freely taken to encourage vomiting when it commences. It is prescribed in small doses, from half to two grains, in chest affections. In large doses, it is serviceable in acute dysentery. A preparation, called wine of ipecacuanha, has the same action as the powder, and is convenient in the treatment of children's diseases. The wine is frequently prescribed as an emetic for children in doses ranging from twenty minims to a fluid drachm, repeated every five or ten minutes, till vomiting is induced. As an expectorant, it is administered in small doses, from two to six minims or more, repeated every second or third hour, in the treatment of chest affections in children. Dover's powder contains one part of ipecacuanha in ten grains of the powder.

Rhubarb powder is of a bright yellow color. It has an agreeable odour and an astringent taste. In small doses, it acts as an astringent. In large doses, it first acts as a purgative and afterwards as an astringent. On this account it is prescribed for diarrhœa depending on the presence of irritating matter in the bowels. Rhubarb powder acts as a purgative in adults, in doses varying from 15 to 30 grains. From 5 to 10 grains of compound rhubarb pill is often prescribed at bed-time for constipation. **Rhubarb powder.**

Gregory's powder is composed of *two* parts of rhubarb, *six* parts of magnesia, and *one* part of ginger. It is used as a purgative for children, in doses varying from 5 to 15 or 20 grains. **Gregory's powder.**

Jalap is the powder of a root. It has a dark brown color and a disagreeable smell and taste. It acts as a brisk purgative, producing copious watery motions. It is prescribed in constipation: in dropsies, to remove the fluid through the bowels; in head affections, to relieve the brain. It is very apt to gripe. Dose from 10 to 30 grains. The compound powder of jalap is composed of jalap five parts, cream of tartar nine parts, and ginger powder one part, and is generally prescribed. Dose from 20 to 60 grains. **Jalap.**

Opium is a dark brown substance, soft when fresh, but soon hardens. It has a peculiar odour and a bitter taste. It is a poison in large doses. The plant from which it is obtained grows in many parts of the East Indies and in China. Several medicinal substances are obtained from opium, the most active of which is morphia. Opium is **Opium.**

used to induce sleep, allay pain, and to subdue spasm. It causes the skin to act, and it checks diarrhœa. The dose is from a half to two grains. It must never be forgotten that children are very easily affected by opium. On this account, the greatest caution is required in prescribing it for them, and the dose must be very minute. It should never be ordered by any one but a medical man, and its action must be anxiously watched.

There are a number of medicines which contain opium; the chief are—

Laudanum.

(*a*) Laudanum, which is a tincture of opium. It is a dark-colored liquid having the smell and taste, and also the effects of opium. One grain of opium is contained in 14½ minims of laudanum. Dose for an adult from 5 to 30 minims.

Paregoric.

(*b*) Paregoric is a compound tincture of camphor. A quarter of a grain of opium is contained in a drachm of this tincture. This is a safe way of prescribing opium for children when they require it to relieve pain or to arrest diarrhœa. For diarrhœa of children, it may be prescribed in doses of 5 or 6 minims. It is prescribed along with other medicines for diarrhœa and spasmodic cough.

Dover's powder.

(*c*) Dover's powder is the compound powder of ipecacuanha. Opium and ipecacuanha are the principal ingredients of this powder—10 grains contain one grain of opium and one grain of ipecacuanha. It is a good diaphoretic. It is useful in dysentery and diarrhœa. Dose for an adult from 5 to 10 grains.

Aromatic

(*d*) Aromatic powder of chalk with opium in

40 grains contain one grain of opium. It is a medicine well suited for children suffering from diarrhœa. The dose for a child of one year is one grain. The dose for adults is from 10 to 40 grains.

powder of chalk with opium.

(*e*) Acetate of morphia is a brownish powder and hydrochlorate of morphia is a whitish one. Both are poisonous. The dose of each is from $\frac{1}{8}$ to $\frac{1}{2}$ a grain. They are generally prescribed in the form of "liquor," which contains half a grain of the salt of morphia in a drachm.

Acetate and hydrochlorate of morphia.

The acetate and hydrochlorate of morphia have all the narcotic powers of opium, but they are less likely to produce headache, nausea, and constipation.

Quinine is a light white powder, and it has an intensely bitter taste. It does not dissolve in cold water, except a few drops of acid be added. It is extracted from the powder of cinchona bark. It is extensively used, especially in India, in intermittent fever, in doses varying from 3 to 15 grains. It is generally administered during the intermission. It often produces deafness and ringing in the ears, and these symptoms show that the full effect has been produced. In small doses, given three times a day, it is a valuable tonic.

Quinine.

Ergot of rye is a diseased grain of rye. It occurs in grains of a triangular form. It may be used in the form of powder, infusion, liquid extract, or tincture. It has a special effect upon the uterus. It produces contraction of the womb, and in labor it may be given, if the *os* be fully dilated, when

Ergot of rye.

there is delay from insufficient power to expel the child. It is chiefly given to arrest bleeding from the womb, and is useful in other forms of hœmorrhage. Dose from 20 to 30 grains, infused in boiling water, to produce uterine contraction, and from 15 to 30 minims of the liquid extract or tincture.

Mustard. The powder of the mustard seed, when applied to the skin in the form of a poultice or sinapism, reddens the skin and causes a smarting pain. A couple of tea-spoonsful of mustard, mixed with water, will act as an emetic if swallowed. It is often used thus when poison has been taken. Mustard is sometimes added to a foot-bath, when it is desired to relieve headache. It is a good counter-irritant, and is much used locally in the treatment of internal inflammations and neuralgia.

Soda. Bicarbonate of soda is a white powder which dissolves readily in water. Vinegar, lime-juice, or any acid causes effervescence when added to soda. Soda is one of the ingredients of effervescing draughts and of seidlitz powder. Soda is prescribed to neutralise acidity in the stomach. On this account it is called an antacid. It is prescribed in heart-burn and vomitting. An effervescing draught is thus made; 20 grains of soda are dissolved in 3 or 4 ounces of water, then about 17 grains of citric or tartaric acid or a table-spoonful of lime-juice are added. A dose of seidlitz is thus made: Take of tartarated soda 2 or 3 drachms, bicarbonate of soda 40 grains and dissolve in half a tumblerful of water, then add tartaric acid 35 grains. This is a mild aperient.

Epsom salts or sulphate of magnesia is a white crystalline substance, which is soluble in water. It has a bitter taste. It is a purgative, and is generally prescribed in 3 or 4 drachm doses dissolved in infusion of senna. This salt is one of the ingredients of the ordinary saline mixture, which is prescribed for the hot stage of fever. It may also be administered as an enema. It is a good rule not to use this or other active purgative during the prevalence of cholera. Epsom salts.

Steel drops or tincture of iron is a fluid of an orange brown color and an acid taste. It is a powerful astringent, and is used locally to arrest bleeding, as that from leech bites, by soaking a piece of lint in it and pressing it against the bleeding surface. It is used internally to improve the quality of the blood in persons who are pale, after severe illness or hœmorrhage. It is prescribed in doses varying from 10 to 30 minims in a wineglassful of water or infusion of quassia after food. It is valuable in certain poisoned conditions of the blood, as in erysipelas, diphtheria and puerperal fever. The strong perchloride solution is used, diluted with 6 or 8 parts of water, as an injection into the uterus to stop profuse bleeding after delivery, and still more diluted to correct offensive discharges in the puerperal state. Steel drops.

Prepared chalk is a white, tasteless powder, insoluble in water. It effervesces on the addition of acid. It enters into the composition of chalk mixture, the ingredients of which are chalk, gum, syrup and cinnamon water. This is often prescribed Prepared chalk.

for diarrhœa. An ounce of chalk mixture, half a drachm of tincture of catechu, and half a drachm of paregoric or 10 minims of laudanum make a good astringent draught for adults in diarrhœa.

Nitre. Nitre or nitrate of potash occurs in white crystalline fragments. It is soluble in water, and has a peculiar cooling taste. It is prescribed in doses varying from 5 to 15 grains, dissolved in water, as a refrigerant in fever, and as a diuretic in dropsy. It is also used in rheumatism. Mixed with an equal part of sal ammoniac (chloride of ammonium) and dissolved in water, it forms a cooling lotion for subduing local inflammation. It is poisonous in large doses.

Carbolic acid. Carbolic acid occurs in crystals. It melts at 95° and appears like an oily fluid. It has a strong smell, somewhat like that of tar. It is sparingly soluble in water. The watery solution makes an excellent wash for foul sores, and an injection for removing and deodorizing offensive discharges. It is sprinkled about a room to make the air sweet. It is now largely used to disinfect places that have been occupied by persons suffering from contagious diseases. Carbolic acid soap is a good disinfectant for the hand when they have been in contact with putrid and poisonous discharges. Carbolic acid mixed with oil is a good dressing for sores. It is also used as a paste and plaster. The pure acid is an escharotic, that is, it will burn the skin, if applied to it.

The solution of The solution of potassium permanganate, which is only half the strength of Condy's fluid, is a dark

purple fluid, and is made by dissolving four grains of permanganate of potash in an ounce of water. It is a powerful deodorizer and antiseptic or preventive of putrefaction. A wash for foul sores is made by mixing two drachms of Condy's fluid with five or ten ounces of water. This may be used as an injection into the nose or the uterus for the removal of offensive discharges. It will deodorize a room, if sprinkled on the floor and walls, but it stains them; hence there is an objection to its employment in this way. **potassium permanganate.**

Oil of turpentine. Oil of turpentine is a colorless fluid, having a pungent odour and taste. It is often prescribed as a stupe to the abdomen, thus:—A piece of flannel is soaked in boiling water, then wrung out, a few drops of oil of turpentine are sprinkled on it, and it is then applied to the abdomen or other part. Turpentine is used internally to expel worms. Half an ounce is added to an ounce of castor-oil and administered early in the morning. It also checks bleeding when administered in half drachm doses, but sometimes produces strangury and other unpleasant symptoms. Turpentine liniment is prescribed for rheumatism and neuralgia.

DISEASES.

NOTES ON THE COMMONER AILMENTS TREATED IN MEDICAL WARDS.

Fevers. A nurse will have served but a short time in the Medical wards of an Indian Hospital before she is struck with the fact that the "fevers" resolve themselves fairly clearly into two types, *continued*

and *intermittent, i.e.,* fevers during which from first to last the temperature keeps above the normal, and fevers which are characterised by intervals during which there is no elevation of temperature, these intervals occurring every day, or every other day, or every two or three days. The latter type includes the fevers generally called *malarial;* the former, some of the malarial and all the other "fevers." Many ailments are accompanied by elevation of temperature: all those in fact in which inflammation of any part is present. But these ailments are not called 'fevers:' they are named usually according to the organ which is the seat of the inflammatory process; for example, there is a lung disease in which a continued high fever is nearly always present, due to inflammation of the lung; the disease is, accordingly called pneumonia, a word manufactured from a Greek word which means *lungs.*

In investigating a case where there is high temperature present, one has to be careful to find out whether there is inflammation of any organ or part of the body which might be the cause of the high temperature before calling it a "fever."

We shall now consider some of the continued *fevers* most commonly found in the wards.

The Continued Fevers.

Simple continued fever.

1. This lasts one or more days and is commonly ascribed to a chill; the temperature seldom rises above 100°—102°—but may go higher; the skin is dry, the tongue furred, the bowels constipated,

the urine high-colored, the patient often feels chilly though the palms feel hot; there is commonly some headache, and the appetite is impaired. The patient is cured in a few days by the administration of a purgative and perhaps a mixture to make him sweat, with a light dietary.

With these cases the nurse's duties are light—but she must be very conscientious in recording the temperature and observing the motions passed, and how the patient sleeps, whether he complains of pain anywhere; for, what may at first be thought to be a simple continued fever, may be really the early stage of something very serious. Fevers are not now-a-days returned nearly so frequently as "simple continued" as was the case not many years ago, owing to the more exact methods now available for determining exactly the causation of disease.

2. Probably none of the ailments to which human flesh is heir brings out more thoroughly the "points" in a nurse than typhoid fever. Patience, endurance, self-sacrifice, intelligent obedience, kindly firmness, are the attributes required in a nurse who would successfully nurse a patient through this disease. Typhoid or enteric fever.

It is characterised in its early stages by a rather low temperature—99°—100°—seldom or never beginning with a temperature of 103°—104° like a simple continued or a malarial fever. The temperature then mounts up evening by evening, quite gradually, with a morning fall a little less than the rise of the previous evening. This goes on for ten Temperature.

or fifteen days, when, if the case does well, the nurse will find the evening temperature gradually falling till at the end of three or four weeks the normal is reached. The highest temperature usually reached is 104°, but it may run higher, or not quite so high.

Abdominal symptoms. It is the rule to have diarrhœa, the stools being like pea-soup, but there may be constipation. In either case it is the all-important duty of the nurse to exercise unremitting care in the disinfection of the stool, as it is believed to be the chief agent by which the disease is conveyed to other persons. It may contain blood, or sloughs of mucous membrane, and vary in offensiveness in many ways: all these things to be carefully recorded by the nurse.

Abdominal pain. It is the rule for the patient to have pain in the abdomen, especially in the right lower part of it —it may, however, be mere tenderness on pressure. If the case is going badly, the abdomen may become distended, the pain then being often severe. The stools under these circumstances will probably contain blood.

Nervous symptoms. Commonly the patient falls into the "typhoid state" about the end of the second week, but sometimes much later. Unconscious delirium with restlessness and picking at the bed-clothes are common enough. The tongue is now dry and brown, the teeth and lips covered with *sordes*. Bleeding from the nose is not uncommon in the "typhoid state."

Eruption. Somewhere in the second week, an eruption, which comes out in crops as it were, frequently appears on the abdomen and chest. It comes out in quite

isolated rose-coloured spots with sharply defined margins, rounded, oval, or spindle-shaped. They can be distinctly felt by the finger, and their colour disappears on pressure, soon of course, to return. It is rare to have more than 20 spots at once—while frequently only half a dozen may be detectable. This eruption is probably always present, but sometimes overlooked, either on account of very few spots appearing, or because it is masked by some other eruption, such as miliaria. The nurse should be on the alert when changing the patient's linen, or performing other offices, so as to be able to report the presence of this eruption as soon as it appears. Typhoid cases have a varying duration. Mild cases are convalescent about the end of the third week, but the disease sometimes run on to four or five or even six weeks.

Duration of a case.

Throughout the course of the disease, the nurse is ever to bear in mind that ulcers of large dimensions may be present in the bowel, which may perforate on any indiscretion in dieting being indulged in, with a fatal result.

Ulcers in bowels.

Patients now and again do not feel ill enough to be easily persuaded to take perfect rest. When this is the case it is the nurse's duty to insist on perfect rest being maintained, even at the risk of appearing unkind.

3. This is a highly contagious disease in which the skin is usually covered by an eruption of pustules.

Small-pox —Variola.

The temperature rises suddenly in small-pox,

Temper-

ature. reaching sometimes as high as 106° during the first three days. This constitutes the *primary* fever of small-pox; at the end of the third day the eruption appears, when the fever begins to fall rapidly. By the eighth day, however, the eruption commonly suppurates, and then the fever runs up again so as to reach, sometimes, 104° or 105° at the time suppuration is at its highest. It then gradually falls to normal. This fever which accompanies the suppuration of the eruption is called the *secondary* fever of small-pox.

The primary fever.

The secondary fever.

The eruption.

The eruption comes out at the end of the third day of fever. It consists of a multitude of slightly raised spots, which soon become hard papules, and then change into little blebs or vesicles of clear fluid, which, about the fifth day show little pits in their centres. The skin is red round each pock. Suppuration begins about the sixth day and is at its height on the eighth;—the pock has now no pit in its centre and has become a pustule. It may then rupture and disappear, or it may just dry up. In either case a scab is formed sometimes during the end of the second week, leaving a pock pit.

The eruption varies much in severity in different cases, the variation giving rise to named varieties of the disease. For instance, when the eruptions are so closely set that they run together, it is called *confluent* small-pox, which is a very serious form; when they are quite separate, it constitutes *discrete* small-pox, which is a mild form, &c.

The con-

In nursing small-pox, while carrying out what-

ever treatment may be prescribed, the nurse should ever bear in mind the highly contagious nature of the disease—that it is contagious from the appearance of the earliest symptom till sometime after the eruption has quite disappeared. tagion.

Measles.

4. This also is a highly contagious disease. The patients, mostly children, frequently do not feel very ill, and are accordingly often troublesome to nurse. The nurse is to bear in mind that while a case of simple measles is of no great moment, should a complication arise, such as bronchitis, sore throat, or diarrhœa, the aspect of affairs becomes at once very grave, and the nurse's cares correspondingly increased. These complications may be regarded as preventible, and it should be the nurse's chief care to see that the patient is not exposed to any of the causes by which they may be induced —draughts, unsuitable food, &c.

In about a week after exposure to contagion, the fever begins, sometimes quite suddenly, with a feeling of illness, chilliness, and in young children, sometimes with convulsions.

The temperature.

The temperature is pretty high from the first, 101°—102°, but may run up to 103°—104° especially in small children. The fever remains very steady for four or five days, hardly falling at all. Then, in mild cases, at about the 4th, or in more severe cases, about the 10th day the temperature suddenly falls, so as to be sometimes sub-normal in twelve hours—this is what is called a *crisis*. It does not, however, remain normal, but rises and falls a little for a few days till recovery is complete.

The eruption.

The eruption in measles is popularly called a *rash*, and comes out about the 4th day, but the date of its appearance varies a good deal. It is first seen usually on the forehead, and soon spreads to the face, body, and limbs. It commonly comes in two or three successive crops. It commences as fine red points, soon becoming raised a little, and finally somewhat flattened. They are hard, and can be distinctly felt by the finger. It is sometimes difficult to say at once whether a bad attack of prickly heat in our close August and September heats, is not a case of measles. The appearance of the two eruptions is very close at first, and the child will often be feverish and have a red throat in an attack of mere prickly heat at the season mentioned. The crescentic or irregularly circular shape of the patches of eruption in measles helps to its recognition. In convalescence the cuticle often falls off here and there.

Nervous symptoms.

The nervous symptoms are usually mild, but delirium now and again occurs, or even a typhoid condition. In these cases the temperature may shoot up to 109° and there will be generally some complication such as diarrhœa or bronchitis present.

It remains only to repeat these complications that the nurse may be on her guard so as to prevent the patient being exposed to their causes: bronchitis, diarrhœa and sore throat. The ears also not uncommonly get affected, especially if the throat is troublesome, a point not to be forgotten nor left unnoticed by the nurse.

Intermittent Fever.

The typical malarial fevers are of the intermittent type. There are certain fevers, however, which are called malarial but are *continuous*, differing only from the continued fevers so far as the conduct of the fever is concerned in having a marked daily remission. Whether these latter are truly malarial fevers is doubtful. They are very common in Madras, and often run a course closely resembling that of typhoid fever, so that the nurse has to be constantly on the watch so as to be able to report the earliest symptom indicative of their enteric nature. The true malarial fever is, as stated above, *intermittent*. The symptoms occurring between the intermissions constitute what is commonly called the *paroxysm* or *fit* of ague. During this fit, the patient has usually three very unpleasant experiences to pass through— The malarial fevers

i. *The cold stage.* The skin gets pale or bluish in white people, or a dull indescribable slate color in coloured persons, quite characteristic, however, and easily recognisable when seen a few times. The fingers get cold and shrunken, the eyeballs sunken, the face anxious, and with an aspect of acute misery. Soon the teeth chatter and the whole body trembles with the violence of the chill. There may be intense nausea or even vomiting. The hairs all over the body stand on end (*cutis anserina*). This stage is often

so severe that the patient may look like one in cholera. It is often, however, so mild as to be no more than a chilly feeling. It lasts from a few minutes to two or three hours.

ii. *The hot stage.* The hot stage soon sets in, generally quite gradually, but now and again suddenly. It is heralded by a sensation of flushing, and the skin, which has just been cold and clammy, forthwith becomes dry and burning. The dull sunken eyeballs start out injected and sparkling. The thirst is unquenchable, the blood bounds throbbing along the limbs and into the head; there is often intense headache, and sometimes convulsions and delirium. This stage lasts five or six hours, but has been known to last eighteen hours.

iii. *The sweating stage.* During the early part of this stage, the patient feels scarcely less miserable than during the previous two stages. But as the sweating becomes general, a feeling of intense weariness supervenes, commonly followed by sleep, from which the patient wakes feeling comparatively well. Now comes the *intermission,* during which, if the patient is suffering for the first time, he may feel quite well; but if it is an old case, he

experiences feelings of langour, weariness, and often much depression, with pains of a neuralgic nature, and impaired appetite.

During the *paroxysm*, the nurse will usually be called on to play the part merely of a spectator—but she may help to allay the misery before her by attention to the patient's clothing so as to regulate it to suit his feelings at the different stages, and prevent his catching chill after the sweating stage. It must however be confessed that she can do but little. As a rule, these patients will not be comforted.

The temperature.

The temperature during a paroxysm runs quite an unexpected course. The fever begins sometimes even before the cold stage—usually, however, with it—rising gradually for a while, and then suddenly starting up, often as high as 106° , or even 110° when the hot stage is reached, and remaining high often into the beginning of the sweating stage. It then begins to run down and up a little; soon however, it falls steadily, about 2° every 15 minutes till it reaches the normal.

Varieties in ague—

i. *Quotidian:* a daily paroxysm with an interval of 24 hours.

ii. *Tertian:* a fit every other day; the interval 48 hours.

iii. *Quartan:* A fit every third day; the interval 72 hours.

There are certain other varieties which are termed *mixed* fevers.

AFFECTIONS OF THE BRAIN AND SPINAL CORD.

The only affections of these organs we shall notice are apoplexy and laceration of the spinal cord from injury, as they are those which are most commonly found in hospitals and which make the most serious demands on the attention of the nurse.

Apoplexy.

1. Apoplexy is an affection of the brain due usually to destruction of its substance by effusion of blood into or upon it from a ruptured blood-vessel. Certain parts of the brain control the movements of the various muscles of the body. In apoplexy it is usually those parts which preside over the movements of the face, arm and leg that are injuriously affected. Consequently there is paralysis of the movements in these parts of the body, proportionate to the degree of injury done to the brain. When the face is paralysed it is common for the patient to be unable to shut the eye of the paralysed side. One-half of the body only is affected in most cases of apoplexy, and the attack is consequently called *hemiplegia*.

Prominent symptoms.

In addition to the paralysis, the patient remains often unconscious for a considerable period. The breathing is of a snoring character, and the paralysed cheek flaps in and out with each respiration. The evacuations are, of course, passed without the patient's knowledge. He is helpless, and remains so in most cases for long after the return of consciousness. The patients are commonly advanced in years, and frequently very stout. Swallowing is often accomplished only with difficulty, and the patient, at first, very restless.

From the above recital of symptoms it becomes at once obvious that the nurse's duties in these cases are likely to be particularly arduous. Feeding the patient is itself not one of the least of her difficulties. In addition to being restless, owing to paralysis of the tongue and cheek, swallowing is much interfered with, and the nurse is therefore in constant danger of suffocating the patient from the fluids administered passing into the larynx instead of the gullet. Difficulties in nursing

Then there is the danger of the patient sliding into such a position in the bed as may interfere with his breathing. The involuntary action of bladder and rectum renders the absolute cleanliness necessary difficult to secure, and necessitates the nurse being constantly on the alert in this regard.

The weight and immobility of the patient, coupled with the difficulty of maintaining absolute cleanliness are fertile pre-disposing causes of bed-sores. On the whole then it is obvious that the thorough nursing of cases of this kind requires the exercise of all the care and skill of which a nurse may be possessed.

2. The injuries it is meant to treat of here are such as completely destroy the continuity of the cord. When very high up, such injuries are immediately fatal, but when situated any where from the middle of the back downward, the patient commonly lives for quite a long period. Injuries to the spinal cord.

The prominent symptoms are loss of motion and sensation in the parts of the body below the seat of injury, together with complete loss of control of Prominent symptoms.

the bladder and rectum. The paralysis in this case affects both sides of the body.

The nursing difficulties.

The nursing difficulties will arise usually from these conditions only, and are much like those experienced in nursing apoplectic cases, with the difference that bedsores are much more likely to form in spinal injuries than in apoplexy: they may be said, indeed, to be inevitable, but the patient's misery, on account of them, may be greatly mitigated by good nursing. It is the rule for the urine to have to be always drawn off by a catheter in these cases. In private nursing the nurse will often be called on to perform this duty herself. A catheter should be set apart for the patient's own use, and it should be carefully washed after each operation, and placed in a jar of weak carbolic lotion. If this precaution is rigorously observed, and the orifice of the urethra wiped clean before the catheter is introduced, the bladder will remain healthy throughout the case. But if it is not observed, the wretched patient's misery will be increased tenfold by a chronic cystitis which will materially hasten the fatal issue of the case.

Patience is a virtue, and never more so than in the nursing of such patients as these. Commonly for a long period they remain in very good general health, and soon come to entertain the idea that they are the only patients in the ward that deserve to be looked after. They become selfish and exacting, and it is only a nurse who by an easy transition might become an angel that can preserve her temper with them, and do her whole

duty towards them uncomplainingly and without a grumble.

AFFECTIONS OF THE LUNGS.

Affections of the lungs are very common in the wards of an Indian hospital, and we may include with them in this statement diseases of the pleura. Only the more acute forms of those affections will be noted here.

Acute Bronchitis.

1. Bronchitis is an inflammation affecting usually the mucous membrane lining the larger air passage in the lungs only. Sometimes the inflammation extends onwards to the finer divisions of the air tubes, especially in children, and these cases are very serious.

Prominent symptoms

The chief symptoms are slight fever, cough, which is often accompanied by a tearing sensation under the breast-bone, and the evacuation of sputum. The sputum varies in the different stages of the disease. At first it is clear, tenacious, perhaps a a little frothy, then it becomes purulent (like pus), then greenish and tenacious, finally clear again and then ceases. The patient is often worn out from want of sleep through the incessant coughing, and, especially in children, the coughing frequently induces vomiting.

The difficulties in nursing.

The difficulties in nursing are usually not very great, but the nurse must be an adept in the making, changing and application of poultices, in the method of using inhalations, in the management of ventilation so that the patient may get the abundance of air which he craves for, and yet not

have the irritation of mucous membranes increased, and be able to exercise a certain amount of discretion as to the times at which medicines, especially those of a sedative nature, shall be administered.

Pneumonia.

2. Pneumonia differs from bronchitis in that it is an inflammation not merely of the mucous membrane lining the air tubes, but of a definite mass of the lung itself which accordingly becomes quite hard and brawny just as one sees in inflammations of some superficial part when an abscess is about to form. The inflamed part of the lung becomes at once useless for respiration purposes proportionately to the size of the part inflamed. The dangerous nature of the disease becomes thus at once evident.

Prominent symptoms.

The symptoms are, fever, which attains a high degree quite suddenly, and remains so—103° —104° for a week or ten days and then as suddenly drops to normal or nearly so; cough, which is hacking, severe and at first incessant; pain in the affected side, often very severe; expectoration which is often blood-tinged—rusty as it is termed; a skin so hot that the hand can hardly be kept in contact with it, so ardent, pungent, penetrating is the heat.

The nurse's duties.

The nurse's duties are usually of a routine nature. She has to attend carefully to the feeding of the patient, using her discretion as to the time of administration of the food so as not to interfere with sleep, or induce paroxysms of cough as little as possible. The same applies to the administration of medicines. Ventilation is all important. The air

should be kept very fresh, while draughts are to be avoided. Some physicians order constant poulticing. When this is so, the poultices must be regularly changed, without chilling the parts, and without exhausting the patient by over-exertion.

AFFECTIONS OF THE HEART.

Affections of the heart arise in great variety, but it is only necessary to refer here to those cases which are accompanied by general swelling of the body (anasarca), breathlessness and diminution of the secretion of urine.

The nurse's duties.

The nurse's duties are suggested at once by a consideration of the conditions present in the patient's body, conditions which constantly menace his existence, *viz.*, the accumulation of fluid in all his tissues but especially in the tissue of the lungs and in the peritoneal cavity, and the diminished secretion of urine, which is really the cause of the other condition. It is clear, therefore, that the danger to be guarded against is anything that would increase the fluid in the lungs or so act on the kidneys as to diminish the secretion of urine. Chills are the most fertile source of danger in these respects, and as the patients are usually very restless it is frequently not so easy to protect them from chills as might be imagined; they are intolerant of warm clothes wrapped round them, as they believe this increases the sense of suffocation which constantly haunts them; they frequently also sit up all night long, propped with pillows, thus rendering their being kept properly covered a difficult task. But firmly yet gently must the nurse take the

necessary steps to protect her patient from chills. By judiciously arranging the pillows too, she may add greatly to the patient's comfort in breathing, and she must never grow weary of the incessant suggestions by these patients of things they think might be done for their comfort, but which are altogether out of the question. Let the nurse always bear in mind the dread distress that must accompany a constant sense of impending death by suffocation, and she will then be the better able to sympathize with her patients in heart-disease, and receive renewed incentive to exert her utmost skill to do what in her lies for their relief and comfort.

Affections of the Alimentary Canal.

It will be chiefly in connection with acute or chronic inflammatory affections that special skill in nursing will be required. We shall, therefore, deal only with three affections: *viz.*, diarrhœa and dysentery and cholera.

Diarrhœa. 1. Diarrhœa is the frequent evacuation of watery motions; and these may be scanty or profuse, and accompanied or not with pain. It is in reality for the most part, merely a symptom indicating the presence in the body of some poison or other, which, it is possible, it may be a means of eliminating, and with removal of which the diarrhœa ceases.

The nurse's duties. The nurse's duties will lie chiefly in rigorous attention to instructions in the matter of the quality, quantity, and time of administration of food, carefully noting the number and character of the motions, and the degree of pain that may seem to be

present. In some cases the temperature should be recorded, for thereby, the cause of the diarrhœa may often be arrived at. The onset of diarrhœa in the course of some other disease should be carefully noted and recorded: it is commonly a symptom of very grave moment.

Dysentery.

2. This is a form of diarrhœa due to a peculiar inflammation of the large intestine whereby ulceration of varying severity is induced.

Prominent symptoms

Prominent symptoms are, at first, a feeling of illness, loss of appetite, then feverishness with colic pains chiefly in the lower and left side of the abdomen. Simply diarrhœa may then set in, or diarrhœa with the characteristic motions, *viz.*, motions consisting in whole or in part of slime tinged with blood, the evacuation of which is accompanied by great straining and twisting pain (tenesmus). These motions may be very frequent, hourly even, and greatly exhaust the patient. As the case improves, more fæcal matter appears in the stools, their numbers and the accompanying pain diminish, till finally the normal condition is restored. If the case goes badly, the stools become horribly offensive, dark-brown with black granules mixed up in them (decomposing blood), or even masses of slough from the gangrenous mucous membrane of the great intestine. *The observation of these points constitutes one of the nurse's chief duties.* Such stools should be thoroughly disinfected.

In regard to other nursing duties, it is only necessary to mention the all-importance of rigid adherence to the prescribed diet and medicines,

the preservation of the patients from chill, and the maintenance of complete cleanliness of their persons.

Cholera.

3. Cholera, next to small-pox, is the disease that has the chief terror for nurses, and yet, it is one of the rarest of events for a nurse to contract one or the other in the actual pursuit of her calling.

This is no doubt due to the precautions they are enjoined to observe to protect themselves from contagion.

Chief symptoms.

There are so many characteristic points about an attack of cholera of a typical kind that the recognition of it usually presents no difficulty. The pinched features, the sunken eyeballs, the restless alarm, the cold clammy surface, already shrivelled in the first hour of the disease, the cramps in the thumbs, great toes and calves of the legs, the frequent rice water stools, the vomiting, the suppression of the urine, the pulselessness, all go to declare unmistakably the nature of the disease.

And the nurse's duties.

In hospitals she will commonly have more than one case to deal with. Her immediate duties will be the administration of medicines, her chief duties to see that her assistants obey her orders. In addition to carrying out such treatment, dietetic and medicinal as may be ordered, the nurse is to constantly note the stools passed, the nature and frequency of the vomit; to see to it that all evacuations, by stool or vomit are at once distinfected and placed in the receptacles prepared

for the purpose; to conduct herself in a calm business-like manner; to have an outward appearance, at any rate, of fearlessness, but to be not the less careful in the observation of every precaution of prevention. She must insist on implicit and instantaneous compliance with her orders on the part of the servants working in her ward, and see that they also conform to and observe the precautions laid down for the protection of themselves against the disease.

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